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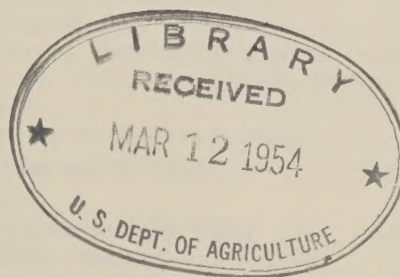
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AUGUST 1952

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CHIEF, SOIL CONSERVATION SERVICE

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WELLINGTON BRINK
Editor

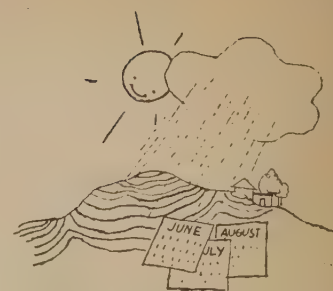
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158 TONS OF RAINFALL.—At the end of a 36-hour period, the gage showed 1.4 inches of rainfall at the Gannett Farms, West Henrietta, N. Y., according to L. B. Skeffington, farm manager. This added up to more than 158 tons of water on each acre, Skeffington estimated.

"There was practically no erosion, or soil loss, thanks to our strip cropping, cover crops, and sod waterways," he said. "We were able to hold back as much as 90 percent of the water, so it could sink into the soil and be useful in producing crops."

Without conservation practices, he estimates that the runoff would have been three or four times greater, not to mention gullyng and loss of topsoil.

(Continued on page 19)



FRONT COVER.—A. R. Scheffler is a poultry and general farmer in Chester County, Pa. He has been a district co-operator since 1948. Out of a total of 152 acres in his farm, 88 are in strips. Scheffler has 13,600 feet of diversions, 4,000 feet of multiflora rose, 300 feet of tile drains—a fair index of the kind of farming he is doing so successfully. The fine air photograph is by Gordon S. Smith.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

CONSERVATION EDUCATION IN OUR SCHOOLS

I LEARNED a lesson several years ago, one that I shall never forget. I was standing some 30 miles from the heart of New York City, in front of the doors that lead into the great building which was, at that time, the home of the United Nations:

It was a morning in March, and the sun shone brightly from a pure blue sky. Back of me, on a broad and spacious lawn, the flags of 60 nations floated gently in the breeze. A thrill swept through me at sight of our own Stars and Stripes waving among them, symbolizing the unity among world neighbors which we, like many other nations in the world, were trying to promote.

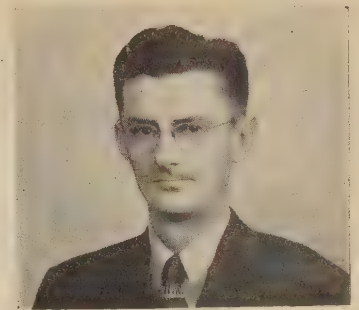


Mrs. Kring and County Superintendent W. C. Bloom review scrapbooks prepared in connection with a study unit in soil and water conservation.

Soon the workers of the Secretariat to the United Nations began to arrive. They came by bus and by automobile; they came by the hundreds. And as they filed up the broad walk and into the building, I could not help but realize that among them were representatives of the various races of mankind—the yellow, the

Note.—The author is supervisor of conservation education, Nebraska Department of Public Instruction, Lincoln, Nebr. This article was suggested by an address delivered at the last annual meeting of the Nebraska Division of the Izaak Walton League of America.

By
**GEORGE
E.
ROTTER**



brown, the black, the red, and the white. I could not help but realize, also, that among these hundreds of workers going into the building were representatives of all the religious faiths in the world, pagan and Christian. Represented, too, were people of 60 different nationalities.

Why do I mention this experience? Simply because here were peoples from the four winds of the earth, forgetting their differences in creed, culture, and nationality and coming together, under one roof, to work at a job of major importance, namely, the bringing of peace to the world. The analogy I want to draw is this: That whenever we are confronted with a



Mrs. Laverta Kring, teacher in a rural school in Dawson County, uses a salt map of a conservation-planned farm to point out practices to girls in her classes.



Randolph School fifth graders, with some of their potted plants grown in soils of various kinds and conditions. Left to right: Marcia McCallum, Clare Grasnich, Larry Hossack, Don Harmon, Carol Matcha, Patty Tatroe, and Bob Rauch.

problem which affects the welfare of all the people, we need, all of us, to forget personal and selfish interests and work together for a solution.

The problem of conserving our natural resources is one of basic importance and affects the welfare of all peoples just as the maintenance of peace in the world affects all peoples. It is because of this that the Nebraska Department of Public Instruction is striving to promote the kind of educational programs in our schools which will result in better conservation of our natural resources. We believe that if our schools are to meet the needs of twentieth century man, they must concern themselves with problems that threaten the welfare of his future. With a speed never before equaled in history, we are today making inroads on the world's natural-resource base that threaten to impair human welfare. School people and people in every walk of life must constantly be mindful of the fact that natural resources form the very foundation upon which the survival and advancement of any civilization depends. If we remember our history, we know that time and again people have risen to great heights as they made extravagant use of their resources. We know how civilizations petered out when their overindulgence in, and failure to maintain, life's sustaining natural resources caught up

with them. It isn't in nature's books that people can draw heedlessly on its fund of exhaustible resources. There is a limit to such resources—a fact with which every school child in Nebraska, the Nation, and the world should become familiar.

Alarming as are the figures of resource waste and loss when they stand alone, they are even more so when viewed against certain facts of life. For example, only three centuries ago, the world's population was 400,000,000; the present population is 2,200,000,000. It is estimated that present population will double in about 70 or 90 years. The yearly gain is about 20,000,000; the daily gain, about 50,000. Population trends in America have likewise experienced a marked upsurge. During the period 1900 to 1950, the population increased approximately 100 percent. In the past 35 years it has increased 40 percent. During the past 5 years there has been an almost 6-percent increase. The tremendous increase in present-day population comes primarily from decreased mortality, resulting from developments in medical science.

So, the picture is this: Today we have depleted our soil resources dangerously. At the same time the population of the world is surging upward, human wants are multiplying, record-breaking developments in science and technology are making unparalleled demands on our natural resources, and the entire world is tensed under the threat of global war.

We cannot afford to let the facts and figures stun us into despair. They should, instead, incite a rally to improve the management of our resources. For as it has been well stated, the world is fast becoming "a sanctuary without exits for a fast-breeding human race." Today the habitable and cultivable areas of the world are for the most part occupied. The practices and methods which we called wasteful a few generations ago become suicidal today.

Our potentially productive cropland, *if properly cared for*, is enough to meet our basic needs for food and clothing, and our needs as regards industrial processes. But the warning is unmistakable; we cannot be complacent with our present wealth of resources. "Conservation," they say, "is everybody's business." It is up to the schools to make that statement stick.



Mrs. S. L. Oglesby, teacher, explains a chart to a class in the Huntington grade school, Lincoln, Nebr.

Because the Nebraska Department of Public Instruction has felt the great need for renewed emphasis in conservation education, it has within the past several years taken great pains to develop courses of study and resource materials

for teachers. The problem has been rather extensively dealt with, particularly in our new science program and in our new social-studies guide for teachers. I had the rather pleasant experience of hearing a teacher from one of our

Judges of the second annual conservation-poster contest sponsored by the Lincoln Chapter of the Izaak Walton League of America in the rural elementary schools of Lancaster County, Nebr. Standing is Dr. Leo B. Shreve, past president of the chapter. Sitting, left to right, are D. E. Hutchinson, SCS dis-

trict conservationist; Paul T. Gilbert, executive secretary, Nebraska Game, Forestation, and Parks Commission; Elva McFie, coordinator of art, Lincoln schools; Verdon Peterson, Lancaster County agricultural agent; Glenn Turner, Lancaster County Superintendent.



Nebraska schools comment at a recent meeting to the effect that he was surprised at the amount of work done by the department in fostering skills, attitudes, and understandings with reference to the conservation of natural resources.

But we admit that the job is not yet done well enough. In fact, jobs of such basic importance to the lives of people can never be done well enough. It is a matter of constant striving to improve upon our work. Accordingly, we have in mind a program for improvement which includes the following:

(1) We shall continuously revise our teacher guides in such a manner as to give teachers the best possible help in providing sound instruction in conservation.

(2) We shall, as we are now doing, channel to our teachers, not simply materials they themselves can use, but also materials which boys and girls from the kindergarten to the high school can use advantageously in the development of conservation skills and attitudes.

(3) We shall use, as we are doing, the teachers' newspaper in Nebraska, which is published by the Nebraska State Education Association. In this weekly newspaper, we shall strive to impress teachers with the importance of conservation education, and also provide procedures whereby the job can be done well.

(4) It is our plan, also, to encourage textbook publishers to give the matter of conservation education more adequate treatment. Although a number of textbooks have greatly improved in this respect, it is still disheartening to note inadequacies. I refer here, for example, to some of our history textbooks which may at times provide page upon page of reading materials with reference to events in history relatively insignificant in the lives of pupils today, but which fail to give adequate attention to the fact that civilizations have fallen to ruin because they neglected life's basic resources.

(5) One of the most important approaches we intend to make in the improvement of conservation education is that of working with our teacher-education institutions to the end that their programs give our prospective teachers suitable instruction in the conservation of our natural resources. It is folly to think that we

will ever do justice to this phase of education if too many of our teachers, in both the elementary and secondary schools, fail to be impressed with the need for conservation and the methods whereby they may instill in our young people right thinking and right acting in this regard. In this respect I think it highly important to add that school people and lay people be particularly interested in having the highest type of personnel possible enter the teaching profession.

May I add, at this point, that the department's conservation would not be, in any sense, a restrictive or narrow one. Yes, we believe that it would concern conservation of the natural resources such as soil, water, minerals, and wildlife. But it must also include the conservation of human resources, specifically, the character of the individual. That should be the primary aim of all education, namely, the building of good citizens.

I am reminded here of the mother who approached me after I had talked to a parent-teacher gathering. She said to me, "Yes, the three R's are important, but I would infinitely prefer that the schools help my son Johnnie to become a *good boy* rather than teach him all the mathematics that Einstein knows." And then she added, "I believe that at times, education, from the grade schools to the colleges, develops our young people into adults who may soar among the stars intellectually, but, at the same time, does not give them enough of the guidance which is needed to keep them from groveling in the gutter morally."

Fortunately, we can, in our schools, help our young people gain a reasonable command of the skills and knowledges essential to intelligent citizenship, and at the same time, build in them wholesome character.

It is my feeling that sound conservation education can be of immense value in the development of moral and spiritual values in our boys and girls.

(1) Such a program can teach our young people the virtue of appreciating and respecting the property and rights of others. How important such behavior is when we think of the damage and destruction that is sometimes caused, for example, by hunters in the field.

(2) Sound conservation education can help our young people to realize the partnership which man has with nature, and develop in them the willingness to assume the responsibilities which this partnership involves. I know of no better way whereby a child in the schools can come to realize that he, a human being, is a product of creation, and meant to be a custodian of the land and other natural resources. And it follows, that a boy or a girl with this realization may also come to understand that he is subject to the natural laws.

(3) Wholesome conservation education is a natural avenue, also, for developing in our young people a firm purpose to preserve the land for the generations which will come to use it after they have departed from this world. Herein lies the development of the virtue of charity, which, when translated, means "an active concern for the welfare of others." I need not elaborate on this spiritual value; it takes little meditation on our part to realize that it does cover a multitude of sins.

In conclusion, let me state that since the will and the purpose to conserve our resources is born in the minds of men, our schools—the elementary, the high school, and the college—must make every effort to improve their conservation education programs. This must be done since no approach to the problem of wise use of natural resources will be durable and long-range unless it results in the development of an informed citizenry. Our young people must develop a sensitivity to the misuse of our resources. They must, moreover, acquire the needed knowledge upon which they may draw in seeking solutions to the problem of proper resource use and maintenance basically. The boys and girls in school today must develop self-discipline and so be willing to make choices in the light of social responsibilities rather than in terms of selfish gain, thus demonstrating an intelligent concern for the welfare of others. This quality, we would say, is of the very essence of the kind of living that is based upon principles of justice and charity. It is only through adherence to these principles that human, as well as natural, resources will be delivered from chaos.

DISTRICT PROFILE

THEODORE F. PEET
of
MINNESOTA



Theodore Peet.

Theodore F. Peet has just retired from the board of the Wilkin Soil Conservation District.

The man who said, "If you want a thing done on time ask the busiest man in town," must have been thinking of a man just like Theodore Peet. Since his graduation from the University of Minnesota in 1935, Ted taught vocational agriculture for 2 years, then began farming in 1938. Along with his other activities, he now operates a 640-acre farm and rents an additional 80 acres.

Peet was elected to the board of supervisors of the Wilkin Soil Conservation District when it was organized in 1944. He served as secretary-treasurer and helped to prepare the district work plan. He worked out the conservation plan for his own farm, using alfalfa-brome grass and clover in rotation with sugar beets and small grain. He has constructed about 4 miles of open drainage ditches of the latest flat-bottom and gentle side-slope design. He has planted 2 miles of field windbreaks to save moisture and stop soil blowing.

In 1946 Peet became interested in land leveling in connection with his drainage. He purchased a leveler and did the first work of this kind in his area. A demonstration of this new practice was held on his farm.

Peet has served on the State Soil Conservation Committee since his appointment in 1948 and will continue this activity. A State policy on soil conservation which he prepared was adopted by the committee. In 1949 he was a delegate to the meeting of the National Association of Soil Conservation Districts in Atlanta. He was appointed to serve on the Minnesota Water Advisory Committee in 1951.

Along with his activities, Ted has found time to serve as director in the Red River Valley Sugar Beet Growers Association, the Wolverton Co-op Elevator Association, and the Red River Valley Crops and Soils Association. He is also chairman of his local school board.

Ted is married and has four children.

—W. H. LATHROP



TIME SAVER.—A change in farm operators on co-operating farms makes extra work for field men assigned to districts. With new operators on 10 percent of the cooperating farms in the Crawford County (Wis.) Soil Conservation District this spring, Walter Raha, soil conservation aid, had to plan some way to save time. Walt believes he saves work by making an advance call to explain the farm plan to the new operator and encourage him to go along with the practices.

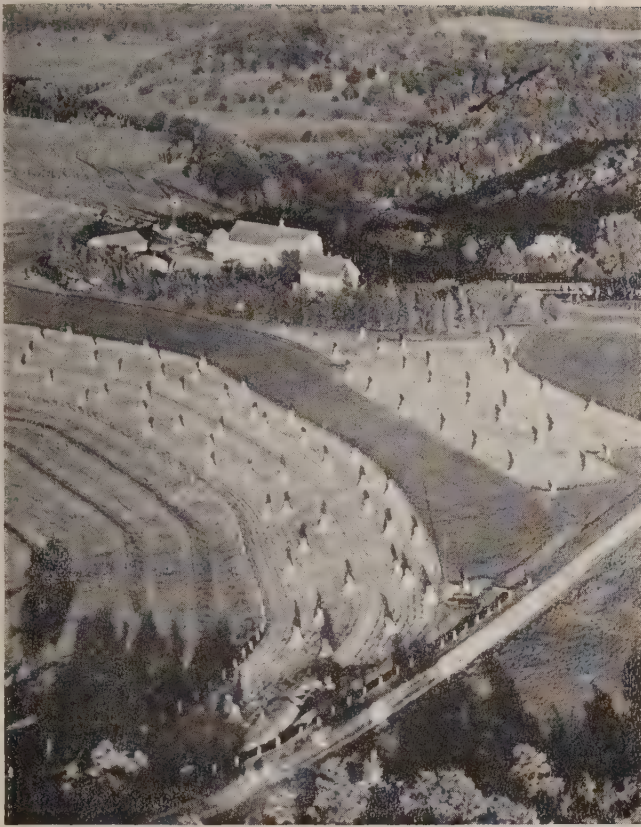
THE CONSERVATION OF PROPERTY

By WILLIAM H. APPEL

OWNSHIP of property in determining land use has rarely held a place of sufficient importance in the minds of conservationists. With a growing population, pressures on land are greatly increasing, and while there is still an abundance of land in America it is being exploited at a heedless rate under the present pattern of private ownership. The ease with which agricultural land can be transformed into recreational areas, housing developments, and steel plants without any apparent awareness of the consequences on the part of real-estate agents, government officials, and business executives, is enough to dismay those of us who are concerned with conservation. If we are to do something about the wise use of our resources, we should ask ourselves what we can do to maintain and achieve the type of ownership of property that will best serve us.

To have a clear understanding of the implications of ownership, we must bear in mind that land is a fixed resource. Its site is permanent even though its productivity and value are as variable as the minds of men. While the question of values will always create differences of opinion, the land will continue to be "there." Since land is the one fixed resource, we are obliged to respect the wide range of its possible uses. Yet the law has successfully separated the ownership of land from the use of land. We know that owners must hold valid titles and pay taxes to retain their property. If these requisites are met, anyone can be an owner. The right to own property is unassailable, and ownership is protected by the registration of warranty deeds and titles. On the other hand, the law has been reluctant to regulate land use,

Note.—This article is reprinted, with illustrations added, from Vol. I, No. 1, of "Yale Conservation Studies," by special permission of the Yale Conservation Club.



It's all "property"—the safe, well-groomed farm and the land that has been made to suffer and lose strength.



although zoning regulations and eminent domain are steps in this direction. Social pressures have also resulted in restrictions, as when an industrial plant is enjoined by nearby residents from polluting the air with noxious gases. Notwithstanding, ownership of land in our society still connotes freedom of action. An owner can mine his land, sell his topsoil, dispose of entire gravel pits, or break up the unity of his plot by selling pieces to a number of purchasers. He can neglect his land and do nothing with it, or he can sell a fertile meadow to an open-air moving-picture syndicate, after which the bulldozer and gravel will complete the destruction.

In addition to his rights of ownership a man's privilege to do what he wants with his own property is heralded as one of the basic prerogatives of free men. By permitting the owner to determine with little check the disposition of his property, the courts have affirmed the economic laws of supply and demand. The policy may prove successful as long as there is an abundance of land, food, and employment, but there is no assurance that it will be compatible with the economic and social demands of the future when population pressures may be intensified.

Property is one of the most deceptive economic and social factors in our society because it can be assessed, bought, sold, and developed as if it had an exact monetary value. Competition for residential, commercial, industrial, and agricultural land creates artificial values. Undoubtedly most owners would agree that productivity is the most important single attribute of property. (A minority would stress esthetic qualities, but values based upon these sentiments become arbitrary and variable.) In many cases, however, individual rights are in opposition to the social needs of the group, and the monetary value of property should not conceal the intrinsic long-term value of land. The role of the conservationist is not to judge political ideologies but to promote a way of thinking above and beyond the right of a landowner to act "freely." On technical grounds the conservationist may question those economic values placed upon property that do not reflect social and individual integrity.

An owner who is considered a good conservationist because he observes accepted scientific practices can easily do things that will nullify much of his good work. Where the unity of a piece of property is broken up by sale, severe use restrictions may occur. The seller may not even recognize that the concept of property is as important as other patterns of conservation behavior. Nor does he realize the significance of "wise" ownership as part and parcel of "wise" use. When he sells, does he think as a land manager or as an entrepreneur? There is every indication that he thinks economically and in terms of immediate monetary gain. A healthy social and economic unit of land can be sadly destroyed by the hasty grantor.

Frequently when land changes hands, topography and geology are given a minimum of consideration. It is vain to argue that the economic laws of supply and demand and the needs of the community will force a healthy use of the land. There are too many instances that prove otherwise. What about the long, narrow holdings so characteristic of the property in French Canada where inheritance laws have sanctioned extreme subdivisions of property units? The small feudal farms of France, the postage-stamp holdings in India, and the geometrically precise farm divisions in most of the United States are all examples of the way in which cultural factors determine property size to the detriment of proper land use. While the trend is not always towards smaller and more uneconomic holdings, the examples do point to the increasing development of small inefficient land units in countries where population is increasing and culture is becoming more complex. The enclosure movement throughout England in the fourteenth century is an excellent example of how ownership practices led to social and economic inequities.

The character of a whole town can be changed by the sale of a large farm or estate. The economic and social welfare of any area can be subtly altered over a generation by the break-up of ownership units. In forested regions good silvicultural practices are made expensive and difficult where ownership is multiplied and dispersed. The value of forest resources disintegrates as acreage falls into the

hands of more and more owners. This is true even when other values are introduced, such as when a camp or residence is built or a refuge set aside, when in reality the potential value of the timber may be of more economic and social importance to the community than a use that is more specialized. Respecting the boundaries of property held by established landowners is not necessarily a policy to protect the "haves" from the "have-nots." The policy should be to render land available for as many uses as possible.

Earlier we mentioned that the ease with which land can be converted into a monetary value makes its real worth deceptive. There is another characteristic factor of land use that blurs our understanding of its value. Unfortunately, the exploitation of land expands in one direction. We can easily visualize pasture land being converted into drive-in theaters, and potato fields being transformed into suburban dwellings. But is it as simple to tear down an industrial slum, grade it, and put it back into agricultural production? The cost of reclaiming land that has been appropriated for urban or industrial uses is prohibitive. A cellar hole in a potato field is different from a cellar hole in thin, stony soil. Land is like energy; once appropriated by man, some of the potential uses are lost permanently, and other uses can be regained only at great expense. Each unwise sale of land can be an additional loss in land-use potential. If the role of the conservationist is to slow down the wasteful dissipation of energy, then he must also concern himself with the manner of land disposal.

A constructive approach to landownership demands an understanding of some of the specific causes of the disintegration of property units. What prompts disharmony in land-use patterns? The pressures of increasing human needs and desires are at the base of this problem, but these pressures can take different forms. Urban residents who buy property in the country compete for it with local residents, who become less and less able to meet the rising costs. The only means of obtaining land is through the accumulation of capital, and the rural population finds it increasingly difficult to secure this capital.

The absentee landowner, like the resident owner, is generally guided by motives of personal gain and security. He is interested in the land for investment and recreation, but he differs materially from the resident owner in that he does not find his employment directly on the land or in the community where the land is located. For this reason, he tends to be less concerned than the resident owner with the maximum long-term health of his community. Since both kinds of owners are integral parts of our social and economic system, it is up to the conservationist to point out to each that holding land involves responsibility, and that here is one commodity that cannot be disposed of indiscriminately.

Leaders in conservation must not only consider land more fully in terms of its exchangeable character, but they must interpret their views to a wider segment of the public. It is questionable whether the real-estate manager is even aware that many of his present practices in dealing with the transfer of property are contrary to sound conservation practices. Appeals to the grantors, the grantees, and to dealers in real estate (so often the ones who set the stage for land transactions) have rarely been made. We speak of educating the industrialist as a first step in pollution control; if this is ineffective, we make laws to force him to comply. But because of the hallowed rights of the property owner, educational efforts are brushed aside with the comment that "it is not your business." Probably the planner is best equipped to take the first steps in persuasion toward achieving a desirable pattern of property ownership. At the other end of the scale is much-debated government control. Somewhere in between lies the role of the real-estate agent who can be educated in the principles of conservation and who, like the soil technician, can assist individual owners in buying, selling, and managing their property in more productive and socially desirable fashion. He is in a position to interpret values which reach beyond pure economics. The real-estate agent is clearly involved in the task of minimizing the destruction of healthy property units which can lead to poor social and economic conditions.



Troop 6 exhibit at Augusta, Ga.

SCOUTS BUSY.—Boy Scouts, focusing attention on Conservation Merit Badges with customary energy and enthusiasm, have been active in many sections of the Southeast recently.

Conservation was the outstanding theme at three meetings in Charleston, S. C., where J. E. McDonald, soil scientist and active leader in Scouting, helped to put on a good conservation show.

At Spartanburg McDonald and others arranged exhibits, showings of conservation movies, and publications for a program for Scout leaders, preparatory to the promotion of conservation as the month's theme of Scouting.

Displays were also used at the annual meeting of the Order of the Arrow, the honorary camping fraternity for Boy Scouts in Charleston, and again for the merit-badge show there. The latter featured exhibits and demonstrations of 36 merit badges and was attended by more than 3,000 persons.

Included in the exhibits were clearly labeled sods of various grasses and legumes. One "city farmer" after seeing Coastal Bermuda-grass on display, went home and telephoned an SCS technician in an adjoining county about getting some of the grass for his farm.

In Mississippi, as a part of the Program for Greater Service, soil conservation district commissioners set up prizes totaling \$400 for five contests, including a Boy Scout Merit Badge contest.

As a result of the contest, 158 merit badges in conservation, forestry, and wildlife management were awarded to Scouts of four troops in the Rosemary Pine Scout District. First prize of \$20 went to the Liberty troop, second prize of \$15 to the Crosby troop, third prize of \$10 to the Centreville troop, and fourth prize of \$5 to the Gloster troop.

In Georgia, the Augusta Rotary Club sponsored a Boy Scout Merit Badge show. The conservation exhibit included a model farm before-and-after plan, a tree-planting demonstration, and displays of quail, pheasants, and fish used in stocking farm ponds.

GEORGIA'S GOVERNOR FARMS THE CONSERVATION WAY

By JULE G. LIDDELL

PINE TREES, grazing crops, and dairy cattle lined the graveled road from the plantation entrance near Lovejoy to the stately, columned Southern home, which we reached at 7 o'clock of a cloudy summer Saturday morning. Two minutes later, a big car with Georgia license plate No. 1 rolled in through the barnyard from a back pasture.

From the car stepped a tall, dark-eyed young man in blue overalls, heavy work shoes, and shirt open at the neck. It was Georgia's Governor Herman Talmadge, dairyman and soil conservation farmer.

Breakfast with the Governor at his plantation home was a happy combination of Southern cooking and down-to-earth talk about soil conservation, fescue, sericea, kudzu, Ladino clover, reseeding crimson clover, silage, cows, pine trees, and soil conservation districts. It was clear that Georgia's first citizen knows conservation farming, and likes it.

Note.—The author is State conservationist for the Soil Conservation Service, Athens, Ga.

Some years ago we began to publish articles, as we could round them up, featuring the conservation ideas of various key officials of State and Nation. Two of these articles were by former governors of South Dakota and Louisiana.

Falling naturally into this series is the following simple and intimate account of the farm which is the pride and joy of District Co-operator Herman Talmadge and his land-loving family. Georgia's Chief Executive will complete his term of office in 1954.

—THE EDITOR

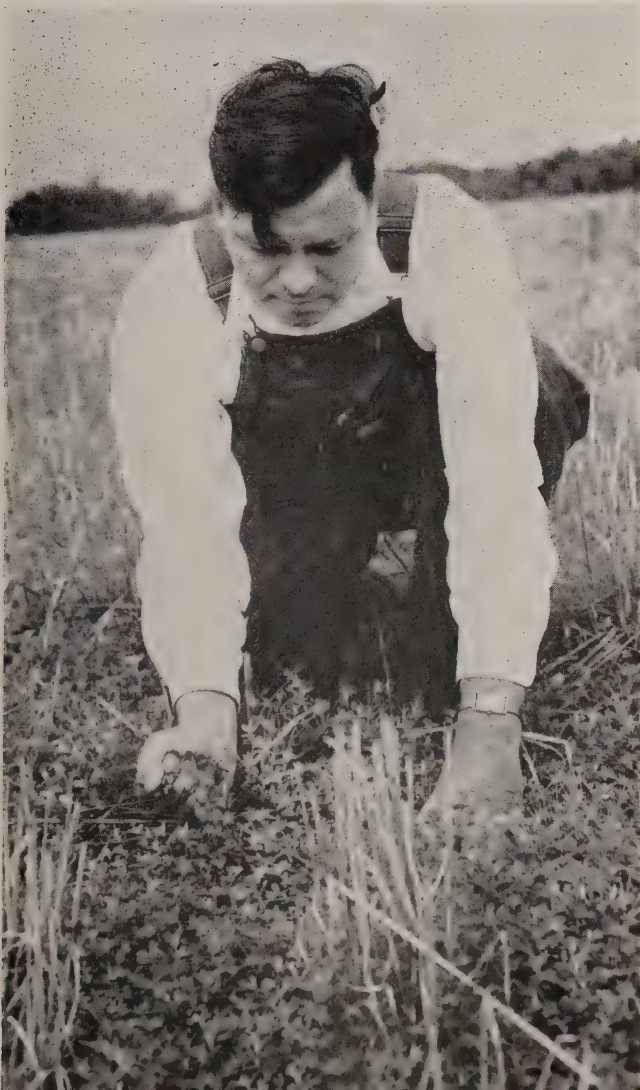
His sons were with us: Robert Shingler, 5, named for his mother's people, a pioneer family of Ashburn, Ga., who did extensive farming in that area; and Herman Eugene, Jr., 8, called Gene, for his governor-grandfather.

Good pasture and good cattle on the Forsyth farm.





This is the 48-acre Twelve Oaks Lake, where the public may fish for a small fee.



After breakfast, Dairyman H. D. Thames, a supervisor of the Upper Ocmulgee Soil Conservation District, and SCS Technician T. W. Cole joined us.

Our schedule, the Governor explained, would be to spend the morning on his 1,700-acre dairy- and beef-cattle farm near Forsyth, return to the plantation house for lunch, and then study soil conservation and livestock farming on the 2,500-acre Lovejoy place that afternoon.

To brief us, Governor Talmadge brought out an aerial photograph showing the land capabilities of the Lovejoy plantation. The Governor pointed out what we would see: Sericea lespedeza or kudzu on Class IV land. Fescue, orchardgrass, and Ladino clover on wet bottom land and some of the better upland. Corn and other silage crops on Class II and III land. Protected and selectively cut pine trees on land best suited to them. Wildlife plantings of bicolor lespedeza. Farm and fish ponds, and the 48-acre Twelve Oaks Lake where the public may fish for a small fee. An irrigation system to

No soil washing but a lot of soil building. The Governor examines annual lespedeza which follows small grain on his farm.



Taking a look at the power plant and pump of the irrigation system designed to keep 100 acres of improved pastures green through spring and summer droughts.

water 100 acres of improved pasture during dry weather. (In short, the complete-farm soil and water conservation plan any farm owner can make with help from his district and the SCS.) We also would see two Grade A dairy barns, two dairy herds, and the commercial beef herd.

Except for the time at lunch with Governor and Mrs. Talmadge, we spent the next 8 hours trying to see all his soil conservation work.

Herman Talmadge was interested in better farming and better land use before he was elected to the No. 1 job in Georgia.

"Before I got to be Governor," he chuckled, "some folks thought I must be on the Soil Conservation Service pay roll. Of course I wasn't, but every time I made a speech, I talked about soil conservation and how important it is."

Each year, beginning with 1949, Georgia has observed Soil Conservation Week in September by his proclamation. The participation has included every group and every organization in the State.

Since his administration began, a major change was made in the State Soil Conservation Districts Law. Originally, the law set up a State Soil Conservation Committee composed of agricultural agency heads. As amended, the law provides for a five-member State Soil Conservation Committee composed of five supervisors of soil conservation districts. They are appointed by the Governor, and the agency heads are advisory members.

Governor Talmadge made a deep impression with his address at the annual convention of the National Association of Soil Conservation Districts in Atlanta in 1950.

The Governor learned about districts by being a cooperator carrying out complete conservation plans. His Lovejoy farm is in the Upper Ocmulgee district; his Forsyth farm is in the Towaliga district. He also learned about districts by working with district supervisors.

"I know practically every soil conservation district supervisor in the State, and I've attended every one of their State meetings during the last few years," he said. "I'm interested in districts as a State official and as a farmer who needs their help in solving erosion and land-use problems.

"Soil conservation districts are agencies of the State of Georgia. I believe that the elected supervisors of these districts are best qualified to determine exactly the kind of soil conservation programs they and their neighbor farmers need and want. That keeps the soil conservation program right down at the grass roots where it belongs. I also think that the Federal Government ought to contribute to the preservation of the natural resources on which all of us depend, and that technical help such as the United States Soil Conservation Service gives should be channeled through these local districts as it is to help farmers in the districts to carry out their own conservation work. The conservation farm plan with districts should be the basis for all agricultural programs."

To the Governor, "increased yields and increased incomes are the best arguments that I know for soil conservation. But soil conservation means even more than that to me; it means that I am building a better farm for my children."

Some of the land farmed by Governor Talmadge has been in the family nearly 150 years, dating from the ownership of his great-great-grandfather, Aaron Talmadge.

And the two Talmadge boys are growing up with a love of farm life. It was young Gene who, during his father's last election, said, "I hope you don't get elected, so we can stay on the farm all the time." A majority of the Georgia voters disagreed with him, but the Talmadges spend every possible week end on the land.

All during our trip over the two farms, Governor Talmadge and District Supervisor Thames compared personal experiences on farming. Their conversation went like this:

Governor: "I planted 1½ acres of bottom land in Louisiana white clover and fescue, and the fescue in 7-inch drills crowded out the clover."

Thames: "I like the fescue better in 14-inch drills."

Governor: "That's the way I'm going to plant it with clover from here on out: stop up



Thames and the Governor discuss silage yields out in the tall corn.



Going over his farm conservation plan, the Governor is flanked by his sons, Robert Shingler and Herman Eugene, Jr., Technician T. W. Cole, and (right) H. D. Thames, supervisor of the Upper Ocmulgee Soil Conservation District.

every other spout of the drill and put it in 14-inch drills."

And there was the customary rivalry between good farmers:

Thames: "I've got plenty of silage corn 12 feet high."

Governor: "I've got it 15 feet high." (And we later saw some of it, too.)

When they turned to hay crops, the Governor and Dairyman Thames saw eye to eye on sericea and kudzu.

"Our country is better adapted to sericea than alfalfa, and if you cut sericea at the right stage, it makes hay just as good, I think," Farmer Talmadge said. "It costs \$100 to put in an acre of alfalfa and \$25 to \$30 a year to maintain it. You can put in an acre of sericea for \$20 and maintain it for \$10 a year. You can expect 2 to 2½ tons of hay an acre from sericea, plus a possible seed crop, plus a place to overseed fescue or crimson clover, plus a job of land building just as good as alfalfa can do.

"And sericea is easy to handle as a hay crop," he added. "You wait until it's 12 or 14 inches high. Cut it in the morning. Windrow it after dinner. And bale it late that afternoon."

While we rode through a 486-acre pasture, the Governor gave us his winning combination for paying pasture sod: First, the right plants on the right land; second, fertilizer and lime;

(Continued on page 19)

WATER PAINTS THE RANGE GREEN



Red cattle on green grass—Heaton's dream come true.

By EARL B. SPENDLOVE

RED cattle grazing on green grass is a beautiful sight to Charles C. Heaton of Moccasin, Ariz., a man who has spent most of his life running livestock on the scorched ranges of the Arizona strip, that portion of the State between the Grand Canyon and the Utah State line.

During the 56 years that Heaton has been raising cattle, there have been many seasons when he saw the feed burn and watering places dry up or become so strong with alkali that the stock would not drink. During times like these, he thought of what it would be like to see cattle standing knee-deep in green grass with plenty of water close by.

The ranges were producing less and less feed, and because of continued cuts on his grazing allotment on the Public Domain, Heaton was faced with the choice of obtaining more land or getting out of the cattle business.

Heaton and his sons, Grant and Kelly, started looking around. They found what they wanted a few miles north of Glendale, Utah. Below the colorful pink cliffs that are part of the same formation as Bryce Canyon National Park was a ranch of about 500 acres that was

for sale. Most of the range was covered with mountain brush, but in the bottom of the main canyon was a small stream of water. Although the little stream had cut a fairly deep gully and lowered the water table on adjacent meadowland until it was producing mostly brush and weeds, it was this flow of cold clear water that sold the Heaton family on the place. They knew the wonders water could work when properly handled.

After they purchased the ranch in June 1945, the father and sons began to think about the unsightly gully. Not only had it lowered the water table on meadowland, but it was difficult to cross and was an eyesore to the ranch. In trying to determine what could be done about the gully, the Heaton family contacted Charlie Davies, who at the time was the Soil Conservation Service representative working with the Kane County Soil Conservation District. Together, they went over the ranch and worked out a conservation plan which included range and pasture seeding, deferred and rotation grazing, and, of course, the control of the gully.

The gully wasn't such a problem after all. A lot of willows and birch were growing along the stream, so Davies suggested to the Heaton family that they see what beavers would do. Through efforts of the Kane County district, they were

Note.—The author is soil conservationist, Soil Conservation Service, Kanab, Utah.

able to get eight beavers. These were turned loose along the stream in August 1946. Results have been astonishing. Since 1946 the beavers have built so many dams in the stream that the water table has been materially raised, floods and erosion have been reduced, and fishing has improved. The beavers have spread to nearby streams where they are building more dams.

The Heatons have constructed ditches and diverted water from the creek in several places, and now have irrigated pasture on land which was formerly covered with brush and trees. The irrigated pasture and meadow have been fenced so the newly seeded grasses are protected. After the grasses are firmly established these same fences are used in carrying out rotation grazing. They have built a small pond which is stocked with fish for their own use, and now are working on range reseeding.

The range-improvement program was started in 1950 when they sold some timber on the ranch to a local sawmill. Logging operations left some bare spots, so the Heatons, in cooperation with the Kane County Soil Conservation District, seeded one of the areas to a grass-legume mixture in the fall of 1950. The summer of 1951 was very dry until late August. Despite this fact, some of the grasses, such as tall, intermediate, stiff-hair, and crested wheat-grasses; sand and weeping lovegrasses; sweet clover; and Russian wild-rye made excellent stands. So pleased were the Heatons that in the fall of 1951 they planted grasses on other bare areas, and also cleared and seeded additional land in the canyon bottoms.

While the Heatons have been improving their land, they also have been improving their livestock. When they bought the ranch they went to purebred Herefords. A good bull and repeated culling have resulted in one of the best herds in southern Utah and northern Arizona.

Heaton calves won first and second places in the fat-cattle class at the Kane County Fair in 1951, and also took blue ribbons in the fat-cattle class in the junior division of the Southern Utah Livestock Show at Cedar City. These prize-winning animals are part of the stock that Heaton has sold to FFA and 4-H Club

boys and girls. In order to encourage youngsters in these organizations, Heaton lets them have their pick of his purebred steer calves for the same price per pound that he gets from his regular calves in the fall.

The Heatons estimate that they have increased their income by about one-third since they bought the ranch in 1945.

The elder Heaton is a real conservationist, and the sons are following in his footsteps. He has served on the board of supervisors of the Pipe Springs Soil Conservation District in northern Arizona for 6 years, and his son, Grant, now is a member of the board.

The Heatons' operations are typical of those in this area in that they spend the summers on the ranch in the mountains of Utah, and the winters at the lower elevations in Arizona. In addition to their 500-acre ranch in Utah, they have a grazing permit on the adjoining Dixie National Forest, and also own ranch land in northern Arizona.



The elder Heaton surveys one of the beaver dams.

DEPARTMENT AWARDS.—At the annual awards ceremony of the Department of Agriculture in May the top honor—the Distinguished Service Award—went to Dr. Robt. M. Salter, Chief of the Soil Conservation Service.

Winners of the Superior Service Award among employees of the Service included: Adrian Fox, Karl Harris, William L. Heard, Robert E. Briola, and Leo P. Arnold.

Superior Service Awards also were won by the Shattuck, Okla., work unit; the Belmont, N. Y., work unit; and the Pleasanton, Calif., nursery unit.

The awards carry with them official citations for achievement and handsome medals appropriately engraved.

SOIL SCIENCE INVOKED BY ARMY AIR FORCE



By R. H. MUSSER

Irwin and Walter J. Mueller,
cooperator in the Shiloh-
O'Fallon Soil Conservation
District.

A GOOD soils man recently saved \$30,000 for the Army Air Force—and the taxpayer. It took Raymond R. Irwin, work unit conservationist at Belleville, Ill., only half a day to do the job, a record for saving public money at the rate of \$7,500 an hour.

Irwin, who is farm planner for the Shiloh-O'Fallon Soil Conservation District, was about to leave for the field one morning several months ago when a telephone call came from Hugo Schneider, resident engineer for the Corps of Engineers, Chicago district. Schneider was in charge of a construction job at Scott Air Force Base.

"He asked if I knew anything about soils," Irwin recalls. "I told him I had training and experience as a soil scientist. He wanted me to come to the Scott base immediately because his problem involved a lot of money and he thought

it important enough to warrant my time. I dug up my soil auger and they sent a car for me in a few minutes."

Irwin found his problem centered around a runway extension where grading was just starting. The Army had been advised that it would have to excavate to a depth of 4½ feet to arrive at solid footing. The soil already there was not thought suitable for compaction. It was planned to haul dirt from a borrow pit several miles away and fill in the fresh excavation up to ground level; the concrete runway could then be raised above ground level to take care of surface drainage. But this system would be prohibitive.

Irwin went to work with his auger and within a few hours had proved there was nothing wrong with the existing subsoil. It was entirely suitable for compaction, a fact which subsequent tests by Army engineers proved correct.

So the excavation was for 18 inches instead of 4½ feet down to good, firm subsoil. At

Note.—The author is regional director, Soil Conservation Service, Milwaukee, Wis.

Irwin's suggestion, the Army constructed drainage ditches for the landing area and took the subsoil from these to fill in the runway excavation.

Even the topsoil from runways and drainage ditches was saved. The Army used it to develop a large grassed runway extension which will safeguard planes that might overshoot the concrete.

No borrow pit was needed, and the only earth moving was in the immediate construction area. The Army estimated its saving at \$30,000.

This is not the first time, however, that the Army has made use of the best facilities available to keep down costs. Nor is it the first time the Soil Conservation Service has made a substantial and direct contribution to national defense.

Late last year Irwin was asked by Captain Carl Lowry of Air Installations to lend a hand in developing a soil conservation program for Turkey Hill. One squadron is located on this 40-acre tract near Belleville and it is the highest ground in that entire area.

The hill was freshly graded and because of steep slopes severe erosion was taking place. Runoff was high because so much of the hill had been covered by roads and buildings.

At Irwin's suggestion, the Army asked the district for assistance and became a district co-operator. Service technicians ran surveys and prepared engineering drawings. The cure is a system of diversion terraces which will drain into a concrete tube and riser. The entire area will be put in grass. The work will be done by contract and under SCS technical supervision.

The directors of the district—oldest in Illinois—were glad to enroll the Army Air Force as a cooperator. Army, Service, and district are all engaged in the job of defending the same democracy.

GEORGIA'S GOVERNOR

(Continued from page 15)

third, water; and fourth, liberal use of mowing machines.

"I've been putting everything I can rake and scrape into these two farms," Governor Talmadge said. "I've

already spent more than \$25,000 for seed and fertilizer. Both places are now making some profit, and I hope to make each one gross \$40,000 a year. I figure that operating costs will be about \$25,000 a year on each place, and that will mean \$15,000 a year net."

He believes that the best combination for his farms, and others in the Piedmont section of Georgia, is pasture, cattle, feed crops, and pine trees. He has 2,700 acres in woods and 1,500 acres of open land on the two farms, and no cotton. His open land is in grasses and legumes or in silage crops.

Livestock farming, the Governor believes, is "a life-time proposition; you have to grow into it." He started dairying in 1949 on each farm, has registered and grade Jerseys, Guernseys, and Holsteins that made Dairyman Thames, a veteran in the business, exclaim with pleasure. He has 250 cattle on each farm. All bulls, both dairy- and beef-type, are registered.

"If a dairy cow fails to measure up to what we expect of her," the Governor said, "she goes into the beef herd, which is a mixture of dairy- and beef-type cattle with registered beef bulls."

While we were with the Governor, he gave detailed instructions to his two farm managers, Grover Wall, 28-year-old war veteran and former 4-H Club member; and D. J. Pitman, who has a half interest in the beef herd.

158 TONS OF RAINFALL

(Continued from page 2)

The importance of having this rainfall in the soil is emphasized by Arthur J. Pratt, vegetable crop specialist at Cornell University, who says almost any crop that covers the ground on July 1 can be expected to use 10 to 15 inches of water during July and August. This means from 1,130 to 1,765 tons of water per acre needed in 60 days at that time of year.

FAITHFUL SERVICE—Ten-year service records are nothing unusual among SCS personnel. But when Willie P. Paschal, of Paducah, Ky., completed 10 years as a laborer at the Paducah Nursery, Nursery Manager Walter Guernsey thought that this deserved some special recognition. It took the form of a letter in which Guernsey wrote:

"It gives me a great deal of pleasure to inform you that on April 13, 1952 you completed 10 years of service at this nursery with the Soil Conservation Service.

"You are the only one remaining of the many men we hired at that time.

"During those 10 years we have had every reason to be glad we hired you. Your services have been most satisfactory and you have been most faithful and honest.

"We, the staff of this nursery, congratulate you on your record, and hope that you have many more years just like those completed."



Borders show where snow has melted. Cooper has benefited amazingly from leveling his land to get more efficient use of water.

EXPERT USE OF WATER TRIPLED YIELD

By VIRGIL S. BECK

I GOT my first ideas on what we now know as conservation farming from a neighbor farmer long before we ever knew anything about a soil and water conservation program in this part of the country," says S. Vern Cooper, who is farming 320 acres about 5 miles northwest of Center, Colo.

This neighbor farmer, Cooper recalls, was A. J. Smith, an old Dutchman who came to the San Luis Valley from Kansas and moved away several years ago.

"Only a fence divided our farms, and I used to stand there and look at his land and then at mine," Cooper says. "It all looked about the same to me. I figured that there couldn't be much difference in the soil on our adjacent farms, and I didn't have any more rocks than Smith. Yet he was getting around 300 sacks of potatoes per acre, while the best I could grow was 100.

"Finally, I asked Smith how he did it. He told me that his success came of keeping his land as level as possible for proper irrigation. In those days we leveled by eyesight, knocking off the high spots and filling in the low places so it would be easier to get water fairly even over

the field. I figured that if land leveling was responsible for giving Smith a potato crop three times mine, I'd better try it."

Cooper already was acquainted with rough leveling. He quit railroading at Casper, Wyo., and moved to Center in 1922. He rented a farm for 5 years and grew potatoes, grain, peas, and hogs.

In 1927 he bought 160 acres of his present farm, of which only 85 or 90 acres were in cultivation, and less than 25 acres of this really was producing crops. The rest was always either too wet or too dry. In trying to irrigate, Cooper found that the low spots got too much water and crops were drowned out, while he couldn't get enough water on the high areas. That's when he started rough leveling, knocking off high spots and filling in low ones.

Cooper bought his second 160 acres in 1938, and continued rough leveling to try to boost his crop yields. When the Center Soil Conservation District was organized in 1944, he was elected vice president and was among the first cooperators.

He started leveling by survey in 1946 and now has completed this phase of his soil and water conservation program which he worked out with SCS technicians. New irrigation ditches were installed as the land was leveled and the entire farm has been subsoiled for

Note.—The author is in the information division, Soil Conservation Service, Albuquerque, N. Mex.

better water penetration. Cooper subsoils a field before planting to potatoes, and planes it after a potato crop to keep the land as level as possible.

In order to maintain and build up fertility, Cooper spreads all available barnyard manure and also uses commercial fertilizer. He scatters straw where cuts are made in leveling, disks under the straw, and then applies fertilizer to build up humus.

Before Cooper finish-leveled his farm he was getting about 100 sacks of potatoes per acre. In 1951, immediately after the field had been leveled, without fertilization, and in a year short of water, he harvested 268 sacks of potatoes per acre. On 2 acres on which liquid fertilizer had been used, he got 36 bales of alfalfa hay to the acre in one cutting.

Cooper is carrying on an 8-year crop rotation. A field is planted to alfalfa 3 years for hay production. Intermediate wheatgrass then is drilled in the alfalfa and the field is pastured 3 years. Then it is subsoiled and planted to potatoes. After the crop is harvested, the field is planed to keep it level, and seeded to alfalfa with grain as a nurse crop.

In carrying out his crop rotation, Cooper keeps 120 acres in alfalfa, 120 acres in alfalfa and grass for pasture, 40 acres in potatoes, and 40 acres in new alfalfa and grain as a nurse crop.

Cooper uses all feed grown on his farm for his sheep. He drilled a well for supplemental irrigation in 1946, but has found himself short of feed during recent years of water shortages. He has been running about 680 head of sheep but has had to rent pasture when water was short. He now has reduced his flock to 400 ewes



Cooper at his irrigation well.



Cooper is president of his district. At left is Will Harmon, secretary, and at right, R. E. Finley, member.

in keeping with the feed he can produce on his own land. As soon as he can build up his feed production, he plans to plow under his last crop of alfalfa as a green-manure crop to add organic matter and to improve fertility. This year he was only four lambs short of a 200-percent crop.

He has been a leader in the Center Soil Conservation District since the district was organized in 1944, and has served as district president since 1946. He has attended the conventions of the National Association of Soil Conservation Districts in Denver, Atlanta, Oklahoma City, and Cleveland within the last 4 years and is a member of the finance committee of the Colorado Soil Conservation Districts Association.



Charles H. J. Breeding.

TO DIRECT STRIP-MINE RECLAMATION.—Charles H. J. Breeding, formerly of the Soil Conservation Service in New Hampshire, has been retained by the Ohio Reclamation Association to head up its activities in reclaiming strip-mine lands.

Breeding will be assisted by Charlie MacIntire, assistant field director, and by Eddie Kohl, Roe Cochran, and Royce Crosby, field representatives.

The Ohio Reclamation Association is an organization of 115 strip-mine operators engaged in actual reclamation of strip-mine lands. Since its organization in 1945 it has returned over 16,000 acres of this land to productivity in pastures, timber production, orchards, and recreation areas.

BEACH EROSION POSES PROBLEM.—Wind and high water along the east shore of Lake Michigan have teamed up for a savage attack on summer homes and industrial property in what may be only a preview of greater damage to come.

Especially hard hit is an area northwest of Ludington where, attracted by fine beaches, many residents of Illinois and Michigan have built summer homes. The State road to this area passes along Lake Michigan and continues to State Park and Big Point Sable light. In the fall of 1951, the level of Lake Michigan rose considerably. The waves covered the beach and soon large areas along the State road began to vanish as the winter storms hurled the high waves against the banks. Broken cement and paving blocks used to protect the beach proved ineffective. In the spring of 1952, large numbers of tree trunks and roots from a highway-widening project and from old orchards were dumped in as protective fill. But the beach is still eroding and the road may soon be out of use.

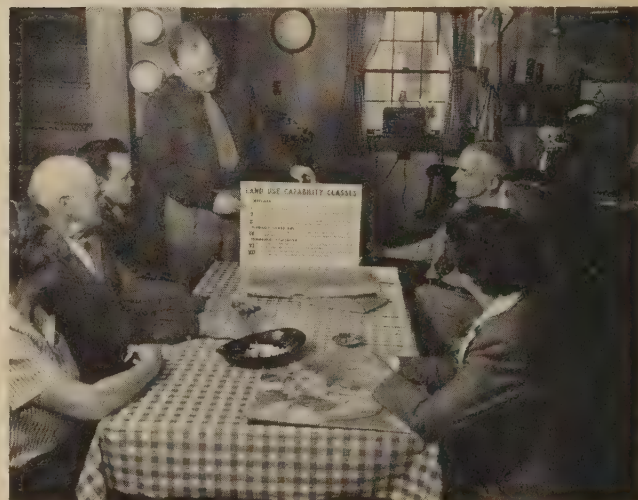
At Epworth Heights, a colony of summer homes north of Ludington on the shores of Lake Michigan, foundations are being exposed, supports washed out, and walks undermined. Exposed water mains and sewage lines make weird patterns.

Commercial interests, too, have suffered in the wild beating of the lake. A pipe line belonging to the Dow Chemical Co. had to be moved.

Even the distant past has been violated by the rising waters. The remains of an old ship has aroused much conjecture from passing motorists.

How to cope with beach erosion is not clear. Protective devices along the beach may be of some help but the situation will probably exist until the lake falls to its normal level.

—ROBERT J. AMSTERBURG, JR.



Typical of the neighborhood conservation meetings held on blustery winter nights in New England was this one in the 250-year-old farmhouse of G. Allen Huggins, in the Strafford County Soil Conservation District, Dover, N. H. Now, in the busy crop season, dividends are being realized. Standing is Robert E. Laramy, district conservationist. Seated, from the left, are Mrs. G. Allen Huggins, Roscoe Simpson, Robert Simpson, Leon Watson, Hugh Tuttle, and Mrs. Sumner Foss.

WHAT'S THE CAPABILITY?—R. E. Burton, of Dooly County, Ga., supervisor of the Ocmulgee Soil Conservation District, told this story at a supervisors meeting. He asked a friend of his, who is a real-estate salesman, what progress he was making in disposing of a certain large estate. The friend replied that he had advertised it well and had had a number of inquiries, but that all of the prospects wanted to know about the land capability. This caught the salesman completely off guard. He later told Burton, "I believe I'm going to have to go back to college and study soil conservation, if I'm going to maintain my reputation as a good salesman for farm real estate."

NOTES FROM THE DISTRICTS

FARM PLAN IN JAPANESE.—A Soil Conservation Service technician working with the West Oahu (T. H.) Soil Conservation District achieved a modest distinc-

CONSERVATION PLAN

保存方案

K. NAKAMA

1. Construct diversion ditches and vegetate (with bahia grass, if available. Otherwise, use manjia or kikuyu grass).
上から流水来る水を流らす爲、畑の上手に溝を掘り、それに草を植込む事。(草は得られればバヒア 得られればマニニア又はキクユを使用する)。
2. Construct terraces broad and shallow and have them discharge into the vegetated hillside. Stagger the discharge outlets.
壇を淺くて廣く築きそれに草木の生えている荒地に排け排口を四散する事。
3. At the end of a growing cycle, use the pineapple plants for mulch.
パイナップルの作を終へるとその木を覆蓋として利用する事。
4. Plant cover crop between pineapple cycles. Use suitable crops such as pigeon peas or purple vetch. Turn under as green manure.
パイナップルの作期を終へて次の作を植える前に間作を作る事。之に適した作物、即ち、鳩豆、又は紫えんどうを作る。之を切込んで緑色肥料とする。
5. Use the broad terraces as farm roads.
廣い壇を農路として利用する事。
6. Plant pineapples on the contour.
パイナップルを等高線に傳はつて作る事。
7. Put in vegetated drainage ditch.
排水溝を掘りそれに草を植込む事。

GLOSSARY

語解

TERRACE

壇 - 耕地を横切にした溝の如き物。

MULCH

覆_フ蓋_イ - 地面に布地して植物の根と保護する物料(藁、鋸屑、木葉)。

COVER CROP

間_サ作_ク - 冬季には地を保護し春の耕耘期に切込みて肥料にする作物。(希に於ては雨の多い冬季の事を云ふ)。

tion recently when he helped prepare the first conservation farm plan ever written in the Japanese language.

The assignment was an "extra" one for Herbert Yanamura, SCS soil scientist. He proved himself fully capable of carrying it out, however. A veteran of World War II, Yanamura received special training in the oriental languages at an Army Intelligence school on the mainland and later was sent to the Philippines where he interviewed enemy prisoners of war.

The plan was translated at the request of Kazuo Nakama, an American of Japanese ancestry who raises pineapples on the windward slope of the Waianae Mountains near Waipahu, Oahu. From the Nakama farm, looking southward, you can see across many miles of the blue Pacific Ocean.

District Cooperator Nakama is enthusiastic about his farm plan and has started to carry it out by planting 5 acres of pineapples on the contour.

After completing his work on the Nakama project, Herbert Yanamura started in on the translation of the Farmer-District Cooperative Agreement.

—ROBERT E. SWANSON.

GOOD NEIGHBORS ON GOOD LAND.—The following is an excerpt from correspondence from the work unit conservationist at Fairbanks, Alaska:

"Saturday evening, November 17, I attended the combined veterans-on-the-farm training class and supervisors meeting in the Salcha-Big Delta Subdistrict. The weather was 20° below zero and the meeting was held around a bonfire, as they were in the process of closing in their new community schoolhouse, and the chimney had not been installed for a stove. There were no long speeches and even the short ones were without gestures."

As background to this, the school building is being constructed by homesteaders in the district, many of whom are taking advantage of the veterans training program. The logs are cut from the homesteads and labor is donated. They hope by providing a building that the Territory will be able to provide teachers for a grade school.

During weather suitable for land clearing, these people work on the land. When winter closed in on them, they turned to bettering their social condition by developing this community center.

It takes a lot of courage to build a community under the conditions such as these people face. It also takes a lot to discourage people who have the true pioneer spirit.

Among the items of business transacted at this meeting was a request to the Alaska Soil Conservation District and the Soil Conservation Service to extend the land-capability survey started last season, and for access roads into the areas found by that survey to be suitable for agricultural use. These people want neighbors, good neighbors, on good land.

—CHARLES W. WILSON.



Raymond C. Firestone demonstrates the planter for O. C. Diller, State forester; Howard Call, chairman of the Summit County Soil Conservation District; and Clay Stackhouse, national vice president of the National Association of Soil Conservation Districts.

TO SPEED THE PLANTING.—Supervisors of the Summit (Ohio) Soil Conservation District are in the tree-planting business now—thanks to Raymond Firestone, vice president of the Firestone Tire and Rubber Co. Firestone recently donated a modern tree planter to help speed up tree planting on district farms.

On his own 110-acre farm in Bath Township this leading industrialist is constructing diversions and grass waterways, and reseeding meadows. With his application for a conservation farm plan, he sent along \$25 for an affiliate membership in the National Association of Soil Conservation Districts.

Supervisors Howard Call, Donald Barlow, Lee Gamauf, William Himelrigh, and Roger Ewart accepted the gift at an Arbor Day program last April, in connection with a demonstration on the V. D. Kniss farm in Richfield Township.

The Summit district has several thousand acres of idle land which needs to go back to tree production. The problem heretofore has been the scarcity and cost of labor. The tree planter will cut down greatly the amount of time and work required.

The board of supervisors has established a replacement and repair charge of \$5 per thousand for planting trees or multiflora rose, with a maximum of \$25 per day.

Douglas Guin, of Richfield, with a helper planted 2,000 trees in 75 minutes. Van Carter, of Tallmadge, planted over 10,000 multiflora rose plants in 8 hours. The planting takes two men, one to drive the tractor and another to ride the planter.

The planter does an excellent job. It firms the soil around the roots better than can be done by hand. It will be used to plant about 15,000 trees and 20,000 rose plants this year. And in 1953 and thereafter it is expected to be in far greater demand. It became available too late this year for cooperators to obtain sufficient planting stock.

A FAMILY ENTERPRISE.—In Worcester County, Mass., is to be found one of the country's finest examples of effective teamwork on the land. Here, working harmoniously and to a single purpose, are the Extension Service, the Soil Conservation Service, the three soil conservation districts, Production and Marketing Administration, Farmers Home Administration, and other agencies concerned with agriculture in its various phases.

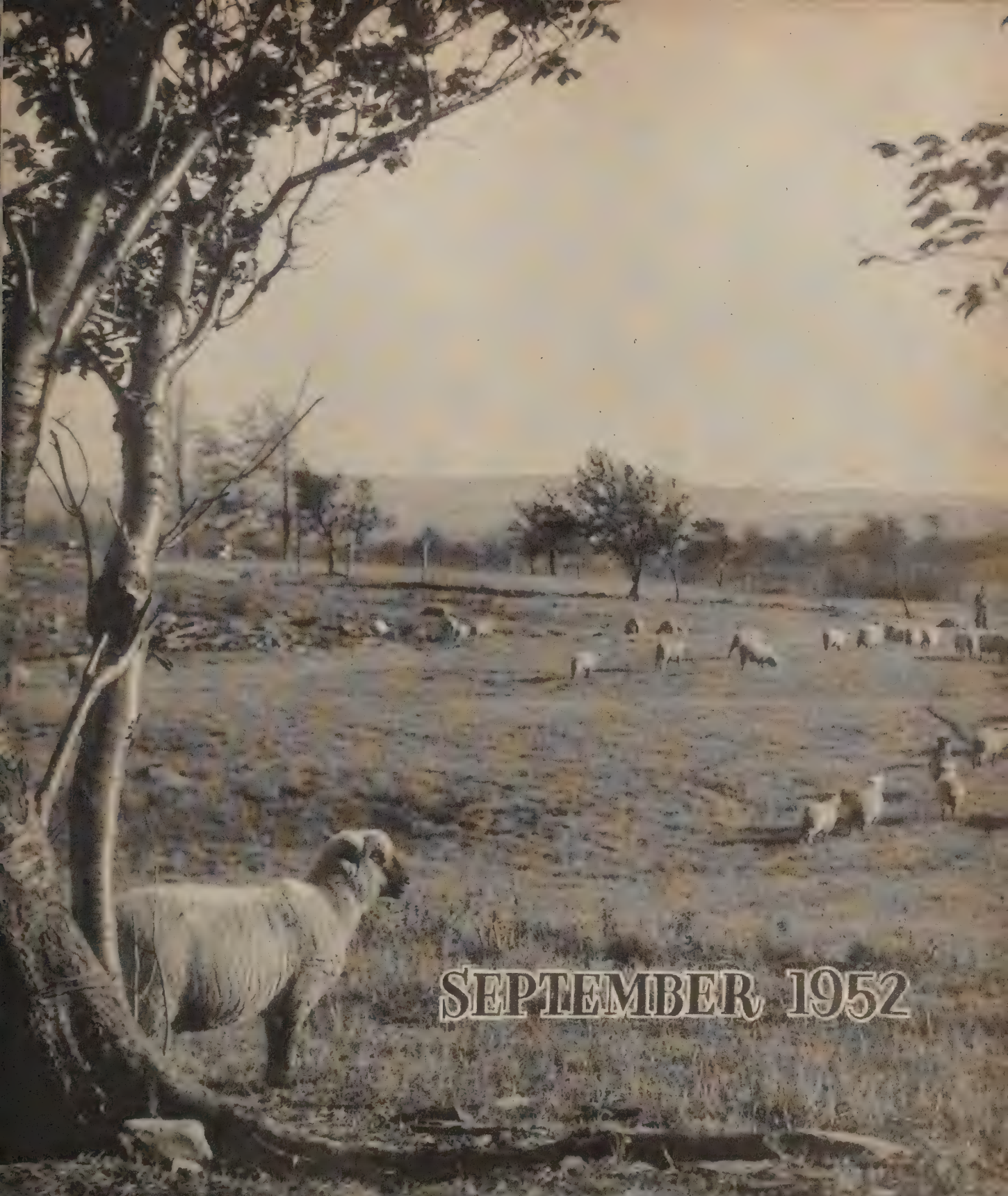
Outstanding evidence of the kind of cooperation prevailing was a recent special issue of the *Worcester County Farmer*, a regular publication of the Extension Service. A typographically attractive, slick-paper, 24-pager with sturdy local advertising support, this issue was developed at the suggestion of Charles W. Turner, the county agricultural agent. Turner offered the three districts and the Soil Conservation Service as much space as they wanted to tell their own story of 5 years' accomplishments, and it took 12 pages of text and pictures to do it. The issue was sent to 6,000 farmers in Worcester County. Gardner C. Norcross, associate county agricultural agent, at the request of the districts and the Service, wrote the leading editorial, "We've Made Conservation Work."

In Worcester County, for quite a long time, the county agent and the SCS work group have been housed together in one big room. This has made their work more pleasant and also more effective.

TREES FIGHT WIND.—Shelterbelts have done much to halt wind erosion on the sandy soil of Gwilym Covell's 320-acre farm. They have also had a big part in conserving moisture and boosting crop yields. Gwilym Covell lives near Heaton, N. Dak., in the Wells County Soil Conservation District.

His shelterbelts border the farm on the north and west. Narrower strips of trees, known as buffers, extend east to west nearly midway between the north and south borders of each quarter section. The district helped obtain the trees and provided planting equipment, and PMA aided through conservation payments.

"We are reaping the benefits now," Covell said. "There are many things besides control of erosion and increased production. There is no more snow drifting into the farmyard. The trees supply an abundance of fruit for home use, and they provide nesting places and food for a large number of birds."



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CHARLES F. BRANNAN
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

★ THIS MONTH ★

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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BANK CREDIT AND CONSERVATION.

—A Nation-wide survey is being made jointly by the National Association of Soil Conservation Districts and the Yale Conservation Program to determine the effect of bank credit on conservation practices.

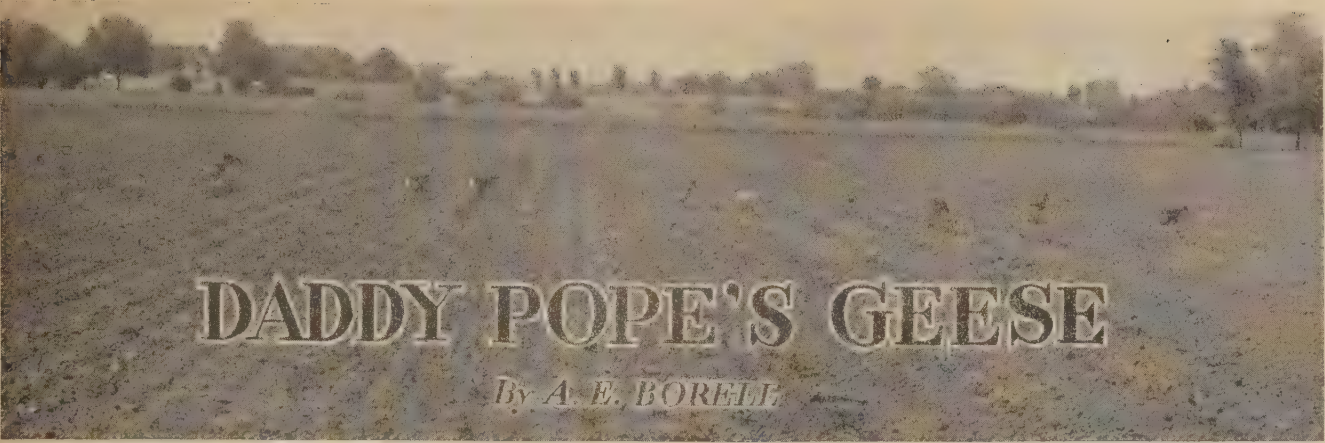
The idea is for district supervisors and bank officials to sit down together for a discussion of the economic issue of soil conservation in each community. Out of such discussion will come answers to many specific questions of mutual interest. Among them is determination of the extent to which conservation practices are required as a condition for credit. Another pertains to the extent to which farmers keep reasonably good records of costs and values. Bankers will be asked whether or not they are interested in having in their files copies of the land-capability maps and farm plans of customers' farms and ranches.

From the survey will be developed a report which is expected to be useful to both district cooperators and bankers.



FRONT COVER.—This pastoral scene from the State of New York is as "soil conservation" in aspect as the contoured strips which constitute the trade-mark of modern conservation farming. Grassland agriculture is spreading rapidly not only through the East but throughout the country. It involves many advanced techniques in water distribution, adapted grasses, and managed stocking.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



DADDY POPE'S GEESE

By A. E. BORELL

ACCORDING to D. N. "Daddy" Pope of Roswell, N. Mex., a goose's love of Johnsongrass and its prodigious appetite combine to make a top hoe hand in many a cottonfield.

Paul Ives in his book "Domestic Geese and Ducks" has one chapter entitled "Geese must have grass." In this chapter Ives quotes Roman writers who, as early as 67 B.C., observed that geese thrived on grass and some other green plants.

The successful and economical rearing of geese has always involved the use of pastures,

but only in recent years has serious attention been given to the maintenance of geese solely for the control of weed grasses in agricultural crops.

It is likely that more geese are kept exclusively for grass control in the Pecos Valley of New Mexico than in any other area of similar size in the United States. In that area Johnsongrass is a widespread pest in irrigated cottonfields, and geese are used extensively for its control. When questioned about geese, most cotton farmers in that area replied, "If you have Johnsongrass, and most of us have, I don't see how you can raise cotton without geese."

Note.—The author is regional biologist, Soil Conservation Service, Albuquerque, N. Mex.



Keeping pesky Johnsongrass out of irrigated cottonfields is a major problem in the Pecos Valley. Grass in the field probably would be as high as that outside the fence were it not for the geese.

Among the many users of geese, Daddy Pope, in the Roswell Soil Conservation District, is one of their strongest supporters. Pope regards geese as "fine people," who go peacefully and vigorously about their weeding and ask for little except drinking water and plenty of Johnsongrass. They love grass but have no taste for cotton plants. Pope further points out that geese have big feet, which distributes the weight, and they are so deliberate in their movements that they rarely damage cotton plants by trampling, even during irrigation. Farmers in the Pecos Valley rarely refer to geese "feeding"—it is always "working."

One characteristic of geese which endears them to Pope is their faithfulness to their mates and families. The pairs remain mated throughout the breeding season and probably for life. They are solicitous of the welfare of their young and will readily take over the care of any goslings that become separated or lost from their parents.

This trait is used by Pope to simplify the raising of goslings. When the first pair of geese appears with its family, he places them in a sheltered rearing pen and feeds them on a prepared growing mash. As other families appear, he places their goslings with the first family. When the pen is full, or the difference in size of goslings becomes too great, he starts a new pen. This system eliminates the necessity of feeding expensive mash to all the adults and permits the adults that have been deprived of their young to go about their business of hunting for the first sprouts of Johnsongrass that appear in the spring. One wonders why any adults are left in the growing pens with the goslings, but Pope says that a pair of adults keeps the goslings contented and in case of a storm will lead them to the most protected part of the shelter.

Pope's geese nest in boxes, barrels, or in grass under machinery. They lay 12 to 14 eggs, of which about 80 percent hatch. Although remarkably free from disease, goslings may be killed by rats or other predators and are somewhat tender to cold and dampness. They grow rapidly and are ready to go to work when they are between 6 and 7 weeks old. At that age they must have shelter readily available because there is still danger from hail or

heavy rain. When the geese are older than 10 weeks, weather is of little concern except that which is very hot—then shade is needed.

The need for shade during the heat of the day is used by some farmers to get complete coverage of their fields. If water is provided at one end of the field and shade at the other, geese working back and forth between the two cover all parts of the field. To one who is not familiar with geese as hoe hands, it is always a surprise to see a flock spread out in workmanlike fashion—one goose to the row. Instead of running back and forth between rows, it is not uncommon to see each goose of a flock stick to his own row and work completely across a large field, sometimes for as much as a quarter of a mile.

Johnsongrass grows rapidly. New shoots or nipped-off blades may grow an inch or more in 24 hours. This tender new growth is eagerly sought by geese and they work up and down the rows day after day. This continuous nipping weakens the roots and eventually kills out the Johnsongrass. Each year, however, a new crop of grass starts from seed, so the goose's work is never done.

Pope says that it costs two or three times as much to hoe Johnsongrass as to control it with geese, and the geese do a better job. Most fields require about one goose per acre, but in badly infested fields this number may be increased. If there is plenty of Johnsongrass, no supplemental feeding is required, but in fields where Johnsongrass is sparse, some feeding of grain may be necessary. In this the farmer must use judgment because, as one farmer put it, there is a delicate balance between a good weeding job and starvation. If too much supplemental feed is given, the geese will get too fat and lazy to be good workers; if not enough, they may starve to death.

Since tame geese can neither fly nor jump, a wire netting fence 2 to 3 feet high is adequate to confine them to the fields. Geese are rarely affected by disease and live to be 10 to 12 years old, occasionally much older. The greatest hazard is dogs. Adult geese can cope with hawks and smaller predators, but stray dogs sometimes do considerable damage.

Geese thoroughly enjoy a daily swim but seem to thrive without this luxury. Pope main-

tains that there is a much higher egg fertility, however, when geese have access to a pond or ditch during the mating season.

There are two ways to obtain geese. One is to buy each year a new flock of goslings or adults. Goslings sell for \$1 up in the Roswell area, and adults or young ready to go to work sell at \$5 to \$7. Dependence on purchase involves uncertainty. In years of large cotton acreages goslings or geese may not be available at the time you want them.

The second course, which is the one usually followed, is to maintain your own flock from year to year. The only drawback is the expense of feeding the flock for the 8 or 9 months during which they are not working. If the cotton grower has grainfields, pastures, alfalfa, creek bottoms, or other areas where geese can forage, the winter feed bill will be low, but if the geese must be fed through the nonworking period on hay and grain, the feed bill will be sizable. In some areas where no off-season pasturage is available, the cost of feeding may make year-round maintenance of a flock too high to be practical. In the Pecos Valley where geese are kept solely for the purpose of weeding cotton, most farmers give little attention to their flocks except during the working season. The grower who takes good care of his flock throughout the year can usually sell enough eggs, goslings, or young birds to cover most or all of the cost of winter feeding; he may even make a profit. Commercial goose raisers usually gather the eggs and hatch them in incubators, but most farmers in this area let the geese do their own incubating.

Geese used in the Pecos Valley are mostly Toulouse or Toulouse-Emden crosses. I talked with no one in that area who had tried the smaller Chinese geese. When working and living entirely on Johnsongrass, geese are much lighter in weight and more active than the lazy, well-fed ones we usually see around farmyards. When asked about fattening geese for the Christmas dinner, Pope replied, "Some people do it but I'm not enthusiastic about eating my hoe hands."

Geese have also been used successfully in the weeding of onions, potatoes, strawberries,

(Continued on page 47)

A GEOGRAPHER AND THE SOIL



Dr. Martine Emert.

By DELBERT WILLIS

"THIS," said the college professor, as she reached for a hunk of soil on her desk, "is a clod of good dirt. It can make nations great and it can cause wars. It sustains life and lack of it causes famine."

Dr. Martine Emert was beginning a geography lecture at Texas Christian University. Unlike most teachers in her field, she was placing little stress on such old stand-bys as rivers, capitals, States, and countries. The focus of her courses is on soil conservation! What makes this new approach even more re-

Note.—The author is director, "Save the Soil and Save Texas" contest, Fort Worth Press, Fort Worth, Tex.

markable is that TCU is a liberal-arts institution. It doesn't even have an agricultural department!

No product of the farm herself, Dr. Emert discovered the importance of saving the soil after growing up in a city and receiving three degrees from the University of California. She had traveled all over the Western Hemisphere and studied geography from every conceivable angle.

What caused pioneers to move to new land? What caused people to muster arms and kill their neighbors? Why were some nations poor, others rich? Why were some farmers living a good life, others providing the raw material for books like "Grapes of Wrath"?

She sensed that she had found the answer in the wasting away of soil, the erosion of fertile lands into deserts.

TCU has captured the spirit of her enthusiasm for soil saving. Her classes are packed. Night sessions were instituted with an opening enrollment of 47 persons, including businessmen as well as students.

College heads decided to make at least one lecture by her on soil conservation a requirement for every student in the school.

To give them a close look at how ignorance and carelessness have brought erosion and poverty, she leads her classes on regular field trips. She has gone into the sky with them in planes to study the pattern of gullies through what were once cottonfields on rolling land broken by the pioneers.

With Dr. W. J. Hammond, of the TCU history department, she is making a study of how erosion has affected social conditions in nearby Ellis County. This is being carried on through a Carnegie Foundation grant.

Dr. Emert, a Phi Beta Kappa at the University of California, ranks soil erosion as the No. 1 problem of the world.

Ahead of the current international strife?

"Yes," she says emphatically. "People are starving to death. History is the story of hungry men in search of food. A hungry man is ripe plucking for a dictator."

Education is the only hope, she believes, and educating men who use the soil, men steeped in the farming ways of fathers and grandfathers, is a trying task.

Her classes are not dull lectures burdened with statistics and monotonous generalities. She uses the lively touch, the provoking anecdote.

An avid and skilled amateur photographer, Dr. Emert takes pictorial evidence of washing soil, which she brings back to the classroom.

Because of her work in higher education in placing emphasis on soil conservation, Dr. Emert won a plaque in the seventh annual "Save the Soil and Save Texas" awards program sponsored by the *Fort Worth Press*. She was chosen the professional person, or non-farmer, who rendered the most unselfish service to soil conservation in 51 counties of north central Texas.



QUICK RETURNS FROM SHELTERBELTS.—Well-planned shelterbelts become effective in a very short time. Conrad Rygg near Clifford, N. Dak., a cooperator with the West Traill County Soil Conservation District, has shelterbelts which are only 4 years old, but the trees reduce blowing for a distance equal to several times their height. At the rate they are growing, it won't be long until he will get a lot of benefit from them.

They are already producing fruit. Mrs. Rygg and the girls harvested several hundred pounds of sand cherries last fall to make into jelly. Neighbors got a large quantity, too; and 140 pounds were sent to the nursery at Mandan for seed.

Rygg's shelterbelts, which total 25 acres, were planted as part of the conservation farm plan he developed with the aid of Allen L. Fisk of the Soil Conservation Service. The district helped him get good seedling stock, and he rented the district tree planter.

The farm has largely sandy soil, so the trees, together with strip cropping, stubble-mulch tillage of fallow land, and use of grass and legumes in the crop rotation, will help control wind erosion—the principal conservation problem.

FRIEND TO FRIEND.—A year-round gift of *SOIL CONSERVATION* Magazine is ideal as a reminder of your thoughtfulness, and as a spur to making a good farmer a better farmer. See subscription rates inside front cover.

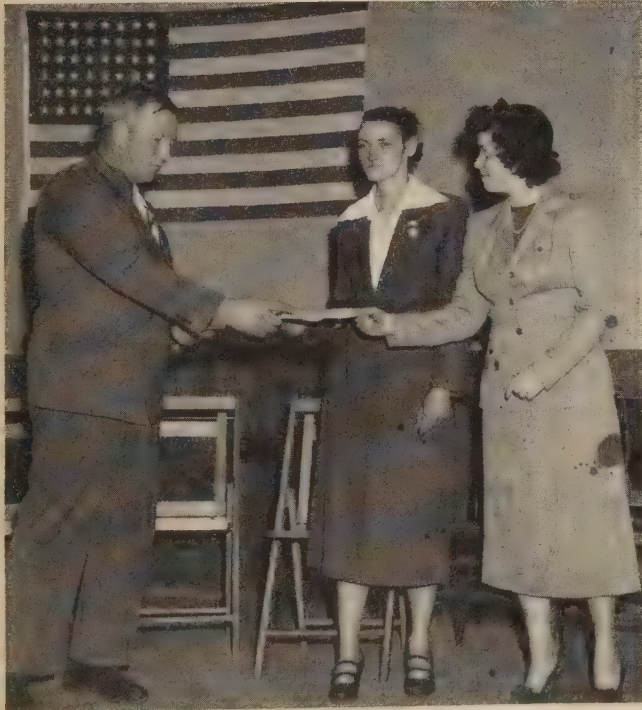
CONTEST TERMINATES PROMOTIONAL CAMPAIGN

By CARL NELSON

WHEN the Leelanau Soil Conservation District in Michigan's northern, hilly, cherry-growing "Little Finger" peninsula held its annual meeting this year, the crowd which filled the hall included as many housewives, school children, and businessmen as farmers. The annual meeting was the culmination of an intensive 2-month promotional campaign.

Features included a "soil conservation quiz-down for women," the awarding of 36 prizes to school children, and the presentation of a hat to the "Leelanau soil conservation farmer of the year."

Plans for the ladies' quiz-down were formulated 2 months in advance. First and second



Elmer Warner, district treasurer, hands cash prizes to winners in quiz: Mrs. Kirk Bixby, of the First Lutheran Ladies Aid Society, first; Mrs. Leonard McNeil, of the Belles of St. Mary's, runner-up.



Grade-school children who won prizes display their posters.



First-place winners in high-school essay contest receive awards from Elmer Warner: Rebecca Weiss, grade 12; Jeanette Maleski, grade 10; Barbara Weiler, grade 9, and Joan Kiessel, grade 11.

prizes of \$20 and \$10 were offered to the women who could answer correctly the most questions about soil conservation. All women over 21 residing in the county, rural or urban, were invited to participate as individuals or as representatives of organizations. Sample questions and soil conservation information were made available.

Eight contestants and their enthusiastic adherents braved the winter's worst snowstorm for the event. Among the questions were "How

Note.—The author is editor of the *Leelanau Enterprise*, Leelanau, Mich., and also a cooperator with the Leelanau Soil Conservation District.

does a diversion terrace differ from a sod waterway?" "What is a land-capability map?" "Name three soil-depleting crops." "What grasses and legumes are recommended for improving upland pasture?" "For what are multi-flora-rose plants used?" and "What is the recommended rate of seeding for Ladino clover?"

Gerald Selby, one of the county's leading businessmen, acted as quiz master, but he wasn't expected to know all the answers! Three referees, seated down front and holding a stop watch to time the contestants, let him know by upraised hands when the questions were correctly answered. The referees were a conservation-minded farmer, a county agricultural agent, and a representative of the Soil Conservation Service.

Originally the contests for school children were planned for two sections only, one for high-school students and one for grade-school pupils, but the businessmen changed that when the district directors called a meeting of representative businessmen and educators to ask for suggestions on their proposed promotional program. The contests for school children were fine, said the businessmen, except that there ought to be one for each grade. The district directors demurred that they did not have enough money for prizes for that many contests, whereupon the businessmen declared they would see to the prizes. And they did—to the tune of eight wrist watches, eight pen-and-pencil sets, and eight flashlights, for first, second, and third prizes in each of the first eight grades. The district offered prizes of \$10, \$6, and \$4 for each of the four high-school grades.

A committee appointed by the directors then got together with a committee of teachers to decide what kind of contests might be offered for children in the lower grades. They agreed on the following:

First grade: For the best drawing of a gully.

Second grade: For the best drawing of a sod waterway and a brief explanation of its purpose.

Third grade: For the best drawing of crops being grown in contour strips and a brief explanation of how such strips help save soil.



District Chairman Herrick Waterman (left) congratulates Gus Ruffi, who was recognized as "Leelanau Soil Conservation Farmer of the Year." With the title went the hat.

Fourth grade: For the best essay of 100 words or less on "How Wind Robs Us of Our Topsoil."

Fifth grade: For the best explanation in 100 words or less of the statement, "Raindrops that walk downhill carry away less soil."

Sixth grade: For the best essay of 200 words or less on "How Cover Crops Protect the Soil from Wind and Rain."

Seventh grade: For the best essay, not to exceed 500 words, on "Why Farms in Leelanau County Need More Land in Hay, Pasture, and Trees."

Eighth grade: For the best essay, not to exceed 500 words, on "How Pastures in Leelanau County Can Be Made to Yield More Feed for Cattle."

For the first three grades of high school, the subject was "In What Respects Is the Leelanau Soil Conservation District a Unit of Local Government and How Does It Function?"

Seniors were asked to write on the subject of the National Grange soil conservation essay contest, "Conservation Farming for Abundant Living," so that their essays could be entered in competition.

The committees of judges evaluating the 321 entries agreed that it was the most worth-while promotion the soil conservation district ever had staged. The work of the children in the first, second, and third grades was particularly outstanding. The pictures, many of them drawn in large size and brightly colored, were used to decorate the hall in which the annual meeting was held.

Winners were notified before the annual meeting, but were not told whether they had won first, second, or third prize. The children, with their parents, were invited to attend the meeting where they received their awards of wrist watches, pen-and-pencil sets, and flashlights.

Like the women's quiz-down, these contests were announced and promoted through newspaper publicity. A complete written outline of the subjects and the rules for the contests also were supplied the principal of every school in the county.

The "Soil Conservation Farmer of the Year" award was based on the number of permanent soil conservation practices in effect on the farm, length of membership in the district, and helpfulness in promoting interest in soil conservation. Farmers who were members of the district's board of directors were not eligible. Technicians of the Soil Conservation Service assigned to the district selected 12 candidates from among the district cooperators, and a committee appointed by the directors made the final selection. The award went to a fruit grower who has strawberries, raspberries, and a young cherry orchard planted on the contour; maintains an old orchard under a sod and mulch system; had constructed a number of diversion terraces and sod waterways; and had cooperated in a number of demonstration projects to which neighboring farmers were invited.

To continue its promotional program throughout the year, the district plans "twilight tours" and picnics for businessmen and educators during the summer, an "open house" on the farm of a district cooperator, and a conservation banquet in the fall. It also is planning to launch a series of snapshot contests, with prizes for the best pictures of farmers carrying out soil conservation practices, such as planting trees for reforestation and windbreaks, plowing and cultivating on the contour, laying out contour strips, etc. A number of women already have asked for another quiz-down next year, and when school children were asked whether they would like to have similar contests next year, they responded with an enthusiastic shout.

SEED PRODUCTION AND BEES.—Four soil conservation districts in northwest Arkansas have taken the lead in organizing a beekeepers association to provide planned pollination services and produce honey. A big increase in legume-seed production is expected to follow.

The supervisors of the Benton County, Madison County, Washington County, and King's River-Long Creek Soil Conservation Districts realize that legumes require insect pollination for high seed yields. So they organized a series of meetings in 1951 to let farmers and beekeepers get acquainted and exchange information on the increase of legume plantings and the need for pollination services.

The 1951 meetings were followed by a session recently in Rogers, Ark., to encourage formation of a beekeepers association. The group quickly developed a going organization, the Northwest Arkansas Beekeepers Association. Officers are H. L. Foster, president; W. H. Smith, vice president; and Mrs. D. N. Doke, secretary-treasurer. Directors are Bert Jackson, L. A. Carman, Pat Claybourn, and Mrs. George Whitman.

Supervisors attending the organization session were Tom McNeil, Harry Stitt, Elbert Graham, and Mack Givens of the Benton County Soil Conservation District; Ewell Boyd, A. H. Berry, Hugh Hargis, and Ralph Buck of the Madison County district; and Ewing Jackson, Hugh Williams, and J. H. Pyeatt of the Washington County district. The meeting was addressed by Phil Allan, regional biologist of SCS; Mrs. Rea Davis, secretary of the Arkansas Beekeepers Association; R. H. Davis, Arkansas State inspector of apiaries; and Erwin Gleu, field representative of the *American Bee Journal*.

—J. E. CRITZ



Members of Future Farmers from Putnam County and Wayne County plant trees as their share in making the new camp and conference center.

CHANCES are very good that the West Virginia hills will have a greener look in the near future. This greater verdancy will be due partly to the planning and development of a conservation laboratory, an important aspect of a brand-new State institution known as the West Virginia Youth Camp.

This camp sprang to life with its establishment by the West Virginia Legislature in 1949. When developed, it will provide facilities for 1,000 young people at a time. There will be 5 groups of cottages of 200 capacity each. There will also be an assembly hall and a dining hall seating 1,000 at a time, as well as a chapel, a museum, an arts and crafts building, and a large swimming pool. All these structures will be centered around a mirrored lake or reflecting pool.

The setting is a peaceful valley 2 miles east of Ripley, in Jackson County, and midway be-

tween Charleston and Parkersburg—only 38 miles from the State capital.

Approximately 228 acres have been set aside for the camp, of which about 110 acres will be used for the conservation laboratory. The topography is fitting for the project because it encompasses flood land, hill land, and bottom land; is badly eroded; and has gullies, drainage problems, and virtually every situation likely to be found in West Virginia.

Striving for a laboratory which would provide the largest possible educational value, members of the vocational division of the West Virginia Board of Education, the agency which has the responsibility of developing the camp, called on a State-wide committee of conservation people for assistance in planning.

(Long-range plans were formulated by a nonprofit organization, the West Virginia Future Farmers of America-Future Homemakers of America Foundation, Inc.)

Answering the call were members of the

Note.—The author is supervisor, West Virginia Youth Camp, Ripley, W. Va.

West Virginia Conservation Commission; the Soil Conservation Service; the extension division, West Virginia University; the College of Agriculture and Forestry of West Virginia University; the Farmers Home Administration; the National Park Service; the West Virginia Park Service; the Vocational Agriculture Service; the Glenville State College; the Monongahela Power Co.; the State Committee of Supervisors of the Soil Conservation Service; the State Road Commission; and the National Forest Service.

The committee moved into the laboratory area in March 1951 and set a date for a follow-up meeting in April. By then the planning had been divided into four phases—forestry, soils, wildlife, and recreation—with a chairman for each. The subcommittees spent the next few months working out details.

After a year, the various subcommittees reassembled at the laboratory area for a 2-day

conference last May. It was then that each subcommittee reported what had been planned and spent many hours revising and adjusting their plans until the four divisions were integrated.

Upon arriving at the action stage, the laboratory was divided into 15 areas, each of which was to have a different treatment. Among other things, the plans call for planting about 70,000 trees—Christmas trees, black walnuts for development and demonstration of the black-walnut industry, and hardwoods to show proper management of farm woodlands. There will be a nature trail featuring shrubs, flowers, and various trees; a demonstration of the proper management of the sugarbush; and a demonstration of types of trees that will grow under different slope and soil conditions.

Each area will have a border around it to demonstrate the various food and shelter plantings suitable for our wildlife friends. Certain



Forestry and wildlife committees drawing up plans for development of the conservation laboratory. Left to right: Lawrence Cavendish, camp supervisor; A. H. Anderson, supervisor, Monongahela National Forest; Earl Core, department of biology, West Virginia University; Clyde Hibbs, vo-ag teacher; James Beach, chairman of the wildlife committee, district game manager, conservation commission; Rogers Pease, horticulture department, West Virginia University; and Malcolm Crooks, game division, conservation commission. Not shown is Tilden Norris, chairman of the forestry committee, conservation commission.



Future Farmers and leader (glasses) from Elkview, W. Va., planting one of two trees by which their chapter will be represented in the arboretum surrounding the entire tract. Two trees of every species native to the State will be included, and each will bear a metal identification tag. From the left: Wayne Wiseman, Billy Shaffer, Junior Flowers, A. H. Holland, Ronald James, and Kermit Halstead.

This view, from the highest point, looks out over the broad expanse of bottom land, with the nearly completed water-storage dam and reflecting pool in the foreground. areas are to be left for development of other practical wildlife practices.

In order that each area may be utilized to the best advantage, trails have been planned leading through it with proper markers and open assembly points for explaining what each group should see.

One area will have an arboretum containing all of the trees native to West Virginia. Here, in less than a mile of walking, youngsters, as well as oldsters, may see all of our native trees.

The recreation committee has planned a picnic area and areas for organized recreation of various types. There will be fishing in the two lakes that are already completed. One of the lakes covers about 5 acres and holds 60 million gallons of water. The other—the mirror lake—is in the center of the building area and covers more than 3 acres. Both were planned by SCS engineers. Other attractions will include a swimming pool, baseball diamonds, tennis, archery, and other sports useful in the conservation of boys and girls.

A 10-acre tract will be operated as a part-time farm. Here a person who plans to hold an industrial job and do farming in his spare time or during plant shut-downs will learn

what he can accomplish in livestock raising and other activities.

The soils committee has drawn up plans to put in a number of conservation practices such as diversion ditches, sod waterway, silting basins, plantings for badly eroded areas, and others of a practical nature. Eventually plans will call for most conservation practices that should be used on both the hill and bottom lands of West Virginia.

The committee adjourned with the feeling that the job is only started and the plans call for follow-up meetings at least once each year.

Yes, the West Virginia hills should take on a greener hue once the camp and laboratory are developed, and 1,000 boys and girls from



all over the State start coming in each week to camp and learn how to treat our hills to keep them beautiful and help heal over those scars left by men who did not know or care about conservation.

THE ECONOMICS OF THE CONSERVATION PROGRAM



By B. F. VANCE

Chairman,
Texas PMA Committee

The author.

CONSERVATION of soil and water is a national problem and is becoming more important as our population increases. Right now we have little doubt but that, with wise

management of our soil and water resources, we can produce plenty of food and other agricultural products to care for our population even if it goes on increasing at approximately $2\frac{1}{2}$ million people a year. It is presumable that our present rate of production, from the good land we have left, can take care

Note.—In 1947 Mr. Vance took leave from his present post to serve for 9 months as production specialist with the American Mission to Aid Greece. Some of his observations during that period are contained in this article.

of the population for the next quarter century. After that time the situation will begin to change unless we have been following a sound conservation plan and the soils we have are made to produce more abundantly.

Certainly, our national objective should be to continue and intensify the programs to conserve the soil and water in order that the Nation may remain strong agriculturally for centuries to come.

History is full of examples where nations fell because of their inability to produce sufficient food.

To realize the importance of conservation, one needs to see some of the older countries where civilization has gone backward. I had that opportunity. It impressed on me what can happen in this country if we do not take our soil and water conservation problems seriously.

I saw many thousands of acres of land in Greece where good crops were grown a few hundred years ago. Today that land is washed away down to the rocks. Around Old Corinth is a grim example of erosion and its results. This ancient city was buried with soil that washed from the hillsides nearby. Those hillsides today have only a little soil left in the irregular surfaces where rocks prevented its washing away. Men and women are still trying to exist by farming these plots of land which are not large enough for mechanical cultivation.

Evidence indicates that in many places 8 to 10 feet of good soil had washed down the hillsides and destroyed not only the farming areas where the soil came from but also the areas below, because the better soils were covered by the poorer soil from the hills.

Near the sea, I saw alluvial, level land which had been farmed for over 2,000 years. It is producing abundantly today where the proper methods are practiced. Much of this land has been depleted of its fertility, but by the proper application of minerals and through crop rotations it is possible for it to make excellent yields.

I have wondered what Greece would be today if a sound conservation program had been developed and carried out several hundred years ago, if the hillsides had been

properly terraced, if the farmers had followed a good crop-rotation system and turned humus back to the soil, if minerals had been applied at the proper times, and the lands had been used according to their capabilities insofar as practicable.

The agriculture of Greece is in a terrible plight. And yet in our own land we destroyed more good soil in the first 150 years of our history than any other nation as far as we know.

Since most of our lands are privately owned and operated, our conservation program must be such that the operators will be conscious of the necessity for conservation. They must realize that conservation pays off to the individual operator, that it will return to the farmer his cost plus a reasonable profit within a reasonable time. We cannot hope to get conservation practiced on many farms where the reward will come in the distant future. We cannot expect to sell conservation on the basis of protection against starvation for future generations. Most farmers do not believe they are financially able to carry out many practices unless economic returns justify such practices.

Under present conditions many needed long-time conservation practices, such as terracing, range improvement, and conservation cropping systems, do not give immediate economic returns to justify the cash outlay for the execution of the practice.

Such practices pay good returns, but the operator may not get his cost back in added returns next year—or for several years. The cost of these practices would mean the owner, in most instances, would have to go to the bank for money. He would put it off while erosion destroyed more and more of his land and while the cost of needed conservation treatment grew year by year.

This means that we must continue public assistance for good conservation if we are to accomplish our objective. It means that we must continue a price-support program in order that the income from the higher yield as a result of better conservation practices will not jeopardize the farmer's economic position.

Assistance may take many forms—technical, monetary, or the furnishing of materials and

services. One of the essential conservation measures is to get a good cover of grasses or legumes on the land, using the minerals that may be needed to make thrifty growth. On many millions of acres of land in such crops as cotton, corn, and peanuts, it is not possible to have sufficient cover on the land during many months of the year. Therefore, other measures must be taken.

The farmers in the United States have made more progress, conservationally speaking, during the last 25 years than has been made in any other country in the world with the same problem. This has been done because of the consciousness on the part of the general public of the need for conservation. It has been

made possible by the information that has been furnished by the agricultural colleges and other agencies, the technical assistance that has been furnished by the SCS, by the plans that have been developed and carried out by the soil conservation districts, and by the monetary assistance that has been furnished by the PMA and other agencies working in the field of soil and water conservation.

Yields have been increased tremendously in many sections of the country and prospects are that continued increases in yields will be forthcoming through the proper development and execution of National and State programs. This coordinated program must continue to function and increase its effectiveness.

FESCUE IN ROWS, CLOVER IN MIDDLES

TALL fescue and Ladino clover make a good soil-conserving, forage-producing team when they work together.

Note.—The author is management agronomist, regional nursery division, Soil Conservation Service, Spartanburg, S. C.



Seed-increase field of Kentucky 31 in rows, large white clover in middles.

By PAUL TABOR

A good farmer can keep the two crops in line by proper management. This may mean extra nitrogen fertilizer when the grass languishes, or extra phosphate and potash if the clover needs help. It may mean moderately close grazing or cutting for hay or silage to prevent lodging and disease troubles in wet weather, or it may mean lower rates of seed per acre to prevent overcrowding.

If the usual hazards are intensified by drought and heat, another method may be necessary. When Ladino clover burns out during excessive summer drought, there isn't much chance of reestablishment in a moderate to dense stand of tall fescue. Experience on Soil Conservation nurseries in the Southeast indicates the solution may be the planting of fescue in contour rows 30 to 36 inches apart with clover in the middles.

The continued persistence of tall fescue in rows with Ladino clover in middles is a by-product discovery. Most of the SCS nurseries in the Southeast have grown Kentucky 31 fescue in contour rows 30 to 36 inches apart, using about 5 pounds of seed per acre. This

spacing and seeding rate was near optimum for 2 or 3 years. After this time, the grass became crowded in the row and needed large amounts of nitrogen and minerals for seed production.

The use of legumes in the middles to furnish part of the nitrogen was suggested and tried. It didn't work well on upland for seed production, because two crops pulled too heavily on the soil-water supply, and the vetches and winter peas tangled the seed heads of the grass. Ladino and big white clovers have continued to grow in the middles for 3 years. On similar upland soils, the clover disappeared in broadcast seedings with tall fescue. Nursery Managers W. C. Young at Thorsby, Ala., and W. H. Mann at Sandy Level Nursery, Gretna, Va., have successful stands of Kentucky 31 fescue in rows with Ladino clover or big white clover in the middles.

In one plot at the Sandy Level Nursery, Ladino clover has pushed out the fescue in broadcast stands. It happened quickly before the cause could be determined. In other similar situations, a leaf-blotch disease, *Rhizoctonia solani*, attacks the fescue plants during periods of hot damp weather. Fortunately the clover is resistant. When the dense growth of clover-grass falls down, an ideal condition is provided

for the disease.

On rich lowland at the Chapel Hill, N. C., nursery a mixed seeding of Kentucky 31-Ladino clover failed because the grass shaded out the clover. The management used was favorable for fescue seed production. The grass plants used the nitrogen left in the soil by the clover and grew larger and taller than in other fields on the nursery.

Grass rows and clover middles do not provide so firm a footing as a broadcast mixture. More selective grazing is also permitted, which may result in overuse of the clover. Lower yields may result from close continuous grazing with the fescue plants kept too small for optimum growth. Any farmer will hesitate to plunge into so many disadvantages if he can maintain fescue and clover in broadcast stands or in narrow rows.

Planting tall fescue in rather wide contour rows with Ladino or big white clover in the middles appears to be the surest way of keeping both. It may be valuable where the hazards of heat and drought are rather high. Less seed will be required per acre. More care in grazing will be needed. The fescue plants should be allowed to grow bigger than in a broadcast pasture.

A HOMESTEADER EMBRACES NEW METHODS

By JAY S. DICKENS

IT is a far cry in northeastern New Mexico from the precarious cash-crop operations of the homestead days to the current livestock program wherein only small acreages of the best land are used to produce livestock feed.

A good illustration of what has happened is to be seen on the ranch of Thomas I. Brown, near the little town of Des Moines in Union County. By applying conservation practices, Brown finds that his forage production has in-

creased 60 percent since the old Dust Bowl period, and that his yearlings now weigh from 50 to 75 pounds more per animal.

Now in the Northeastern Soil Conservation District, Brown homesteaded his original 320 acres in 1913. The first sod was broken out during the winters of 1914 and 1915. Since then he has made numerous additions to his holdings of from 40 to 100 acres of cultivated land each.

Crops in homestead days were mainly corn and beans. These provided quick income for the early settlers. Soon, however, the home-

Note.—The author is district conservationist, Soil Conservation Service, Clayton, N. Mex.



Thomas I. Brown

steads realized that such crops furnished very poor cover for the land and that a lot of topsoil was lost by wind erosion.

During World War I, Brown and other homesteaders in the area attempted to switch over to wheat production, and a few successful crop years were recorded. Often, however, a dry fall and poor winter cover resulted in additional soil losses from the high winds during winter and spring. This led to the disastrous Dust Bowl of the thirties.

When the Northeastern Soil Conservation District was organized, Brown hoped that the conservation program might help check erosion, so he became a cooperator in 1940. The original plan, which he and SCS technicians drew up, provided for reseeding of abandoned cropland, contour furrows, diversions and water spreading for conservation of moisture on range land, and additional watering places.

In discussing this original plan recently, Brown said that before becoming a district cooperator he had been trying to work with

the water and handle it by means of diversions and other erosion-control structures, but that his efforts failed because there was **more water** than he could cope with. By using the combination of practices outlined in his conservation plan, he soon found that he could keep the water under control and make good use of it.

Although the land that Brown was cultivating at the time his conservation plan was written was not considered suitable for good crop production, he continued to farm the best of it for several years.

His success in reseeding fields that had been retired from cultivation influenced him to make use of the land-capability survey made by the technicians. An amendment to his conservation plan, prepared in 1949, resulted in all but 20 acres of his poorest farm land being retired from cultivation, and approximately 45 acres of new land being broken out for feed production.

The new 45-acre field has been completely terraced, and Brown plans a cropping system that will maintain good stubble for protection against high winds. He is opposed to using cultivated fields for pasture in this wind-erosion area, and believes that the grazing of crop stubble causes soil blowing. He plans to use only hay crops of oats or millet and will leave a good stubble.

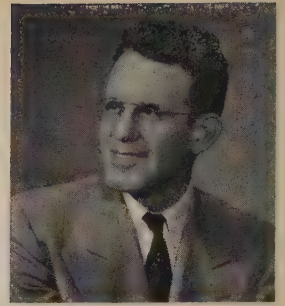
Brown also favors large dike terraces on small areas subject to overflow. These hold run-off water on extremely heavy soils that have slow infiltration rates. This provides good soil-moisture storage for small acreages in feed-crop production.

This pioneer is convinced that there is more profit to be had from small acreages treated intensively, using a combination of soil and water conservation practices, than from large acreages of doubtful productivity.

ENTIRE CLASS TAKES TOUR.—The Georgetown, Del., High School recently sent its entire sophomore class to the field for a day's observation of soil and water conservation, good land use, weed killers, fertilization, grain elevators, poultry feeding, and biology as applied to poultry and marine life in the Delaware area. It was the first time in the State that anything larger than a special study group had ever made such a 1-day tour. Paul Hodgson, professor of agriculture at Delaware U., and William Ratledge, SCS farm planner, accompanied the students.

INDUSTRY'S STAKE IN CONSERVATION

By *WALTER C. GUMBEL*



The author.

OUR interest in conservation directly affects all of our electric customers. Those customers represent many interests—agriculture, coal, steel, chemicals, lumber, business, hunting, fishing, and many others. The farm families we serve can neither, for example, afford the luxury of electric living if the productivity of their land suffers, nor can they be good customers of other industries built to produce goods for them.

Because of these relationships, we feel that resource conservation in all its aspects is no longer a matter that affects only farmers. It obviously concerns industrial, commercial, urban, and recreational interests—in fact, entire communities, be they large or small. Many of us, until recently, were inclined to consider the wise use and conservation of the renewable natural resources as applying only to the agricultural interests of the Nation. This is perhaps because much of the conservation and reclamation work has been and will continue to be done on the land. In recent years, however, groups other than agriculture have come to recognize that they too have a stake in such resources.

May I cite one example? In the territory we serve there are many natural resources—coal, gas and oil, timber, salt brine, sandstone, and water, of course. We want to grow, as a territory, and, naturally, as a business concern. We have the resources; the other part of the job is to attract capital, bring in the industries that will utilize the resources. One of the first questions we must answer concerns our water supply. Can we guarantee a strong and steady supply of good water? Another ques-

tion pertains to outdoor recreational facilities, including those for hunting, fishing, picnicking, and swimming. In a territory like ours, in which nearly half of the population and most of the land area are rural, corrective measures to provide these resources must be established on the land. Even in the matter of providing an adequate labor supply, industry has been able to draw from a large segment of our population labeled part-time farmers. They are people who live on the land but whose farms are so small that they have the time and the need for supplemental work in industry. When the soil resources on their lands are depleted, when hunting and fishing and other forms of outdoor recreation become poor, their tendency is to move away, to search for employment where they can find it, rather than try to do something about it themselves. To correct this situation, one industry in cooperation with local conservation agencies set up a special school to encourage their workers to stay on the land and establish good land use and conservation measures.

Our interest is selfish, yes; but perhaps that is the soundest kind of interest. The president of the company I represent has been emphasizing the idea of self-help for a number of years, encouraging others allied with the power company to get behind worth-while projects like resource conservation and community service for their own good. He is firmly convinced that when you are looking for allies in such an undertaking, the best approach is to look to those who have selfish interests. When the wise use of our resources can be presented to industrial interests as a sound business venture, something that can directly affect their own economic welfare, then you can depend on their help. Even the churches have found that

Note.—The author is conservationist, Monongahela Power Co., Fairmont, W. Va. He also is editor of the *Journal of Soil and Water Conservation* and serves in important capacities with various organizations concerned with the protection of natural resources.

the economic value of conservation is related directly to their own existence and growth.

I mentioned our relationship to the farmer. We have a heavy investment in him, gambling on the prospect that he will continue to farm and expand his economy to the point where we will get a return on our investment, if not through him directly, then through the business and industry that stands to profit by his growth. If he fails, we are hurt. The farmer can move away; we cannot.

That is why we are a part of the conservation movement.

We have been growing into our conservation efforts by degrees for the past 6 years. Early in 1945 we brought into one of our valleys a

noted engineer to make a study of the watershed problems and needs and to recommend a plan of development. His report on the watershed gave our company a better understanding of the job to be done, and as we looked deeper we became more conscious of our stake in the land and its conservation, and of the long-range planning that would be necessary to obtain the development he recommended.

One statement was particularly impressive. In speaking of floods, he said: "Regardless of where dams are placed to control floods, without land-use and soil-conservation practices 75 percent or more of the flood damage to the land will continue." Taking this as our cue, we proceeded to enlist the efforts of others to begin

These workers are clearing away brush and flood debris along the Little Kanawha River, Glenville, W. Va.



thinking in terms of watershed development. It provided an excellent approach for cooperative effort by industrial, commercial, agricultural, and recreational interests. All aspects of resource conservation were involved, including those pertaining to soil erosion, depleted forests and wildlife, loss of farm and industrial income, pollution, floods, nutrition, and a host of others. These touched everyone.

There was a lot to be done, mostly to create concern and an interest among the people of the territory we serve. Soil conservation districts were doing a fine job then as now, but the over-all job of watershed development now goes far beyond the individual farm. Businessmen had to be shown that haystacks are as important as smokestacks to the economy of their communities. Most of all, communities must be made fully aware of their role in planning. If the program to manage our land and water resources is to serve the best interests of all, it must be planned at the community-watershed level.

The power company does not presume to be an "expert" on the subject of resource conservation. Our only aim is to help, and implement, the efforts of recognized conservation and educational agencies and the experts in any way we can. There are many organizations that are justifiably classed as expert because they have been a part of the conservation movement for many years and have devoted full attention to the subject. The Soil Conservation Society of America, the Wildlife Management Institute, many educational institutions, and soil conservation districts are excellent examples.

We are not in conflict with any of these bodies—and when I say "we" I am speaking for all business and industrial interests that have a stake in our resources and are involved in the job of helping. Everyone is working toward a common objective. The only difference is that we are aiming at different audiences. We, the conservation "amateurs," do have certain facilities, however, for reaching people whom the experts do not have time to reach.

Who are the amateurs? They represent agricultural publications, banks, dairy-product companies, equipment and supply dealers, fertilizer manufacturers, limestone producers,

mining interests, power companies, railroad, rubber, and steel companies, and others. Amateurs, perhaps, but certainly not amateurs in the business sense. They have a professional interest in conservation because it means dollars and cents, and is basic to the economy of the Nation.

The helper I know most about is the electric-power industry. Because of the reasons already pointed out, 76 percent of all electric utilities operating in America now are engaged in some type of agricultural programs that involve the wise use and conservation of our soil and water, forests, wildlife, and related resources. We have one committee within the Edison Electric Institute that deals entirely with rural development and resource use. This committee is now in the process of formulating an industry handbook covering all phases of resource conservation and how member companies can cooperate by implementing the efforts of others in this field.

There are many other helpers. The West Virginia State Chamber of Commerce is actively supporting a State-wide program of watershed development and, in cooperation with regional groups, conducting a series of four principal river-basin, watershed-development conferences.

In two of our major valleys, regional organizations, sponsored by newspapers and supported by civic, industrial, and agricultural leaders, have made watershed development a "must" in their over-all area-development programs. During the past winter definite steps were taken in the Monongahela, the Little Kanawha, South Branch of the Potomac, and the New River Basins, to start the big job at the local watershed level—back in the headwater areas.

They will have to depend on outside help from local, State, and Federal governments, to be sure, but they will be in a position to say, "Here is what we want," and "Here is how we want it done." They have learned that agencies from the outside, no matter how efficient, capable, or sincere, cannot know the community's local problems as well as the community knows them. What looks sound on paper is not sound if it disregards human principles.

The company for which I work was active in the promotion of conferences that led to initiating these development programs—first through a State watershed-development conference, then through conferences in each of the four watersheds I have mentioned. The conferences were designed to bring together all related interests—urban, agricultural, industrial, and recreational. All aspects of resource-use problems and needs were discussed—soil, water, forests, wildlife, pollution, recreation, and others.

More than 800 persons representing every segment of society participated and took part in discussions and group “workshop” sessions. Out of the meetings came the following watershed-development objectives for West Virginia:

1. Recognition of the watershed as the proper unit for the wise utilization and development of all lands—crop, pasture, forest, and wildlife, such lands to be treated in accordance with their peculiar needs and by methods that will both control soil erosion, conserve water, enhance wildlife, improve farm income, and prevent flood damage to agricultural lands.

2. Retardation and prevention of floods through the placement of small multipurpose reservoirs and other water-impounding structures at the headwaters of streams and in problem areas.

3. Provision for an abundant supply of water for domestic, industrial, and agricultural needs.

4. Development of wildlife refuges and expansion of game-food and cover programs.

5. Abatement of organic, inorganic, and soil pollution in West Virginia streams.

6. Broad expansion of recreational facilities such as public parks, picnicking and camping grounds, with more lakes and streams suitable for boating and fishing.

These six points represent the combined thinking of industrial, agricultural, commercial, and recreational interests. There is no conflict. We are now in the process of finding ways and means to translate these objectives into an action program on a community-watershed basis; also, to bring about their acceptance by the State as “State policy.” It is our firm belief that States and local units of government must share in the resource development of their areas by providing leadership, finances,

and legal status. If this is not done, the only course left open is for the Federal Government through its appropriate agencies or commissions to do the entire job for the people. The Federal Government has definite resource-conservation responsibilities and should work with and through the States. The present co-operative arrangement between the Soil Conservation Service and soil conservation districts is an excellent example. We cannot operate harmoniously under two sets of policies.

As a company, we have sought to stimulate and develop interest in conservation and wise use of resources through other channels.

Just about a year ago, the little country town of Glenville, W. Va., located near the headwaters of the Little Kanawha River, decided to do something about floods. Floods were coming with alarming regularity and each became more expensive. Three times in the first 4 months of 1951 the Little Kanawha River had overflowed its banks and flowed down Main Street. Each time, business places, property owners, and the community suffered losses that were measured in thousands of dollars.

It looked like a pretty big job for the town to tackle, but they were determined to do it, and they soon found a lot of volunteers. Townspeople were recruited to help with clearing brush from the banks of the river. Construction firms in the area loaned bulldozers and other equipment to remove the sand and gravel bars in the stream. Lumber crews and right-of-way crews from the power company and the gas company moved in. I was asked to help plan and supervise the attack. The power company's publicity department set about to help tell the story and was instrumental in getting it on television and radio.

Glenville, as the result of its own efforts, overcame the flood problem in a single day of concentrated effort. For about \$2,000 they achieved something that, had they waited for government help, might have cost 10 to 20 times as much.

The Glenville story illustrates how we operate in our territory. Similar approaches were used in connection with a West Virginia Land-Use Day demonstration, which attracted more

(Continued on page 47)

REVIEWS

LAND FOR TOMORROW: The Underdeveloped World. By L. Dudley Stamp. 230 pp. 1952. Bloomington, Ind.: Indiana University Press. \$4.

In this book Dr. Stamp, English geographer who has long turned his attention to land problems, summarizes his lectures for The Patten Foundation at Indiana University in 1949-50. The particular problem with which he deals is "that of matching the world's use of its natural resources with the needs of its people." He attempts to steer a middle course between those who see population control as the only "road to survival" and those who see "new worlds emerging" in undeveloped lands such as the tropics.

The author points out that "the American population is growing at a far greater rate than India's 'teeming millions'" and, furthermore, that the white peoples of the world have gained more in numbers than other peoples. Whites have, in fact, increased tenfold in the past century, or four times as rapidly as the total world population. In treating the world's lands, Dr. Stamp emphasizes the limits of physical and climatic conditions controlling the growth of crops desired by man. Acknowledging a couple of million square miles of underdeveloped land in the tropics, he admits the enormous difficulties of bringing them into use. He calls for more study and better techniques, pointing to failure of past projects, such as the now famous Groundnut Scheme of the British in east Africa.

In a chapter "Food for All," the point is made that if output per unit area is the criterion, maximum agricultural efficiency is found in China, Java, and northwestern Europe. With present knowledge and range of crops, the United States, Argentina, and Canada are the underdeveloped countries. "Is there any reason why output per acre in these areas should not be brought up to northwest European levels?" asks the author. One of the interesting conclusions of the book is that the truly underdevel-

oped areas, in relation to potentiality, are most likely to be found in our familiar middle latitudes rather than in the tropics.

In "Salvaging the Old World," Stamp commends land-use zoning in Great Britain, a program with which he has been intimately concerned. Its 10 classes or categories of land are directed at the "optimum use of every acre in the national interest." He maintains that agricultural machinery designed for American conditions is not suitable for the Old World, and calls for each country to work out its own solutions. In "Preserving the New World" the author points to the need for the world to become aware of "its stupid behavior, through a process which has been well called 'the mining' of the soil for the sake of 'cheap' food." He describes the UNESCO-supported World Land Use Survey and then points to the following as desirable lines of development: (a) erosion



L. Dudley Stamp.

control, (b) pest control, (c) new strains of plants and animals, (d) increased use of organic manures and chemical fertilizers, (e) better adapted farm machinery, and (f) improved food processing. He admits that to date such developments have not kept pace with population increases.

One finishes the book feeling that he has been introduced to some new points of view and numerous facts neatly presented, but that the problem the author set out to treat is not solved, even theoretically. The "if's" that condition its solution are prodigious. There are a few references and an index, along with a fair amount of graphic and tabular material.

To one interested in the food-population problem, and to whom this book may appeal, the reviewer calls attention to several other popular works on the subject that have appeared rather recently. They are: "Let There Be Bread," by Robert Brittain, journalist turned philosopher; a symposium by English authors entitled "Four Thousand Million Mouths"; and "The Geography of Hunger," a controversial book by Josué de Castro, chairman of the FAO Executive Council. And one should not overlook Bertrand Russell's "New Hopes for a Changing World," most vigorous and stimulating of them all.

—EDWARD H. GRAHAM.

INDUSTRY'S STAKE

(Continued from page 45)

than 15,000 people; the organization of the West Virginia Forest Council; the selection of a pilot county for the development of a conservation-education program in the public schools; conservation educational camps and workshops; and the creation of our experimental watershed in cooperation with the United States Forest Service.

We are also cooperating with civic and business organizations, sportsmen's clubs, agricultural groups, youth groups, and churches, helping them with the organization of conservation programs that fit the needs of their areas.

The job ahead is big not only in West Virginia, but throughout the Nation. The wise use of resources is one of America's biggest

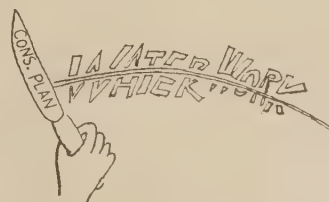
and most pressing problems, not only because of its effect on the land but also because it involves the way of life itself.

DADDY POPE'S GEESE

(Continued from page 29)

raspberries, orchards, nurseries, as well as pond and ditch banks. Since they prefer grass to clovers, geese may be used to remove undesirable grasses from alfalfa and other legumes.

Pope says that in addition to being top hoe hands who pay no attention to holidays and never heard of an 8-hour day, geese are good watch dogs, giving alarm whenever strangers come around. They are handsome, friendly birds which add interest and beauty to farm life. As Dickens noted, "Every man thinks his own geese swans."



HIGHER YIELD WITH LESS WATER.—J. M. Eaton makes twice the crop with half the water and a fifth of the work, as a result of applying a conservation plan to his irrigated land. Eaton is a cooperator with the Butte (S. Dak.) Soil Conservation District.

The irrigated land supplies winter feed for sheep. Some of it is in small grain, but 102 acres is in alfalfa for hay production. Eaton's conservation plan covers 17,320 acres.

Planned for the range land are improved grazing management, construction of stock-water facilities where they are still needed, and water spreading to increase grass production.

Initially, the field was uneven. It was necessary to apply lots of water to irrigate the higher areas. The soil is heavy clay. The water would stand on the surface of those low areas until most of it evaporated. Water entered slowly. The result was that part of the crop was drowned out.

The land has been leveled, a border-dike system of irrigation established, and structures to permit control of the water have been installed. The lay-out was designed by the SCS, and PMA aided with conservation payments.

SUITABLE PRIZES.—Subscriptions to **SOIL CONSERVATION Magazine** are becoming popular prizes for essay contests.

KINGSBURY SOIL CONSERVATION DISTRICT

COURT HOUSE

PHONE 235

DE SMET, SOUTH DAKOTA

June 20, 1952

Mr. Wellington Brink
Editor, SOIL CONSERVATION
Soil Conservation Service
Washington, D. C.

Dear Mr. Brink:

We thought that you would be interested to know that for the fourth consecutive year we are furnishing our cooperators of the previous year a one year's subscription to SOIL CONSERVATION magazine. This time the number of subscriptions amounts to 110, which in addition to the cooperators who have never had the magazine, includes the banks, libraries and High Schools of the county.

In checking our records of the past four years (our district began operations in 1948) we find that we have purchased 470 one year subscriptions so that you can readily see that our board of supervisors is convinced of the value of this magazine to new, as well as old cooperators.

Our district is not a very large one, having only about 1300 farming units. We had 435 cooperators at the close of the fourth year of operations. For our own information we were wondering how other districts regard SOIL CONSERVATION and how many of them have bettered our record, considering all aspects, in the use of this publication.

Sincerely yours,



Roland Leonhardt, Chairman
Kingsbury Soil Conservation District

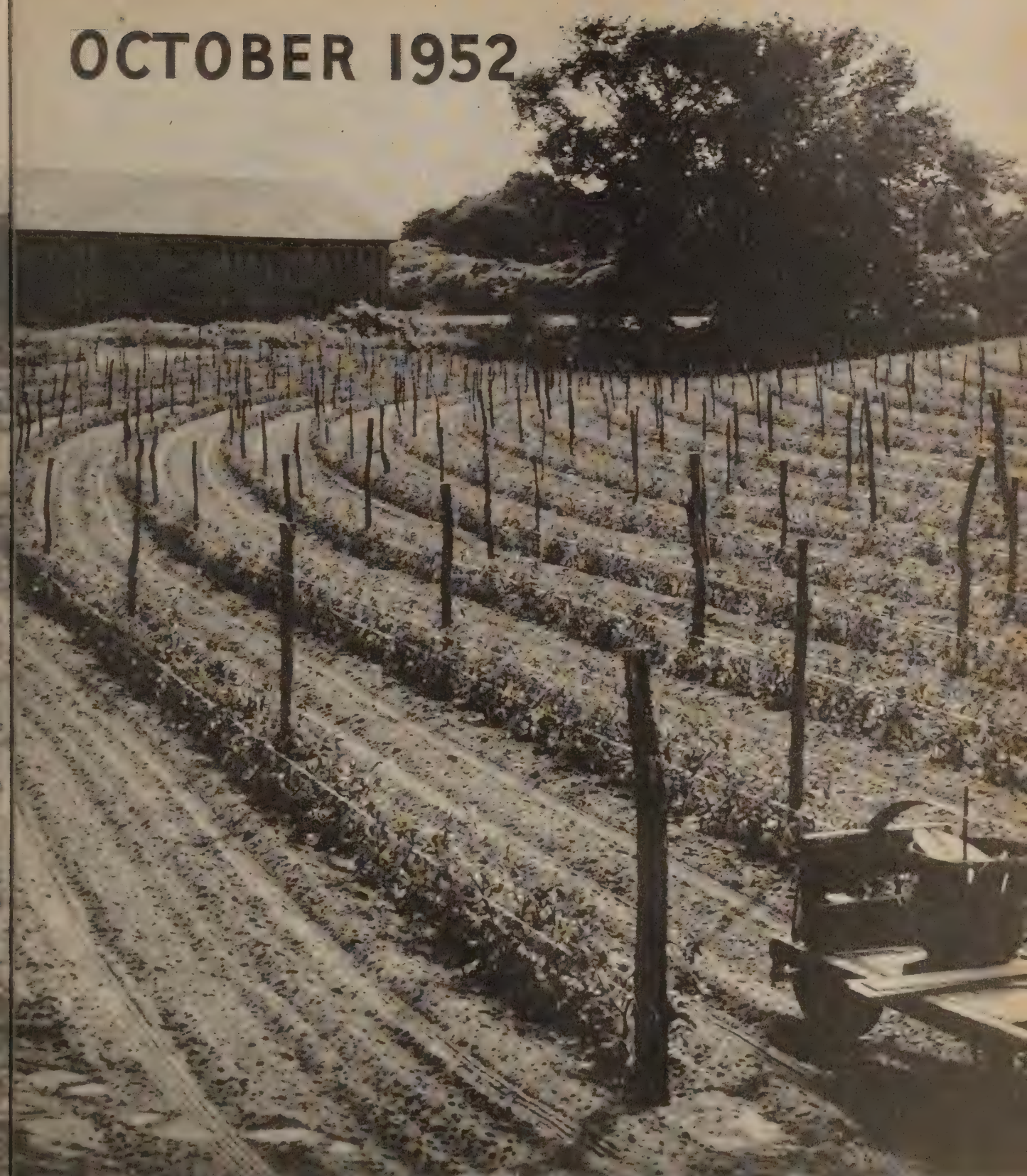
A QUESTION, AND A CHALLENGE.—Every reader should consider carefully the above letter from the chairman of the Kingsbury Soil Conservation District.

Four years' experience in supplying new cooperators with SOIL CONSERVATION Magazine is a good test. As with many other districts, the magazine has proved invaluable to Kingsbury in arriving at a common understanding, and in helping newcomers to become a part of the working team. It has also more than paid its way in the form of practical information that can be put to work on the land—techniques explained simply, educational ideas that have made schools and whole

communities conservation-conscious, news notes gathered from all over the country full of how-to-do-it suggestions. Regularly, 12 times a year, each cooperator is reminded that he is an important part of something big and worth while in American agriculture—a unique and democratic movement which helps this land to be strong and free.

The investment is small, and the returns are big. Can any district afford not to make use of this important tool? How many districts can match the record of Kingsbury?

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CHARLES F. BRANNAN
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

★ THIS MONTH ★

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WELLINGTON BRINK
Editor

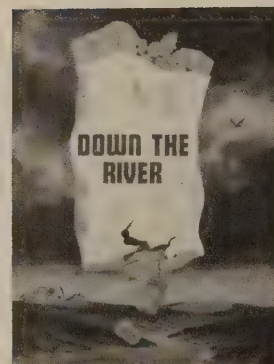
SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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mailed to a single address



DOWN THE RIVER.—A 16-page pictorial booklet has been issued by the Soil Conservation Society of America in the hope of reaching every home with the story of what is needed to safeguard the American land.

Already, according to Morris Fonda, president of the Society, more than 200,000 copies have been distributed on a cost basis. The booklet is being ordered in quantity lots by banks, businesses, and industrial concerns for clients, customers, and employees.

Expertly done, as might be expected under the Society's sponsorship, "Down the River" presents in simple English and pointed illustrations the reasons for erosion losses and the approved methods of husbanding both soil and water. It constitutes a reliable primer for both adults and young people. It can be read quickly, be understood and remembered easily. It is an ideal publication for the

(Continued on page 69)



FRONT COVER.—Tomatoes staked on the contour on the farm of Burdette Farnham, East Hartford, Conn. Photograph by W. T. Hebel.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

IN ONE DAY A NEW FARM IS BORN

By HERB BODDY

ANY idea how much conservation work can be done on the land in one day?

Thousands of the country's farmers and ranchers know how much they can do single-handed.

But let's suppose you picked a mid-April day to work on a piece of raw, desert land, as did the planners of the colorful, action-packed A-Farm-in-a-Day show at Jerome, Idaho.

Say you could field half a million dollars' worth of farm equipment, had 1,500 volunteers ready to pitch in. Could you put 128 acres of that kind of land in top working order by day's

Note.—The author is in the current information division, Soil Conservation Service, Portland, Oreg.



People are the proudest product of the land. And here are the Herrmanns—all smiles, and fine examples of young America.



The key to everything: a colorful land-capability map and photo display.

end? And with some 13,500 farm folks and townspeople looking on?

Questions like these were in the minds of a lot of people in Jerome County early last spring when the North Side Soil Conservation District and the Jerome County Equipment Dealers announced their big western demonstration of soil and water conservation. The job of making a complete farm enterprise out of the rough homestead acreage of young World War II vet John Herrmann loomed as almost too tough to handle.

Here's what A-Farm-in-a-Day leaders were up against! Herrmann, a Brush, Colo., farmer, settled on the site of the old Japanese Relocation Camp at Hunt 3 years ago. He was proud as a peacock over his new land. A less avid fellow would find plenty to dampen his spirits. The land hadn't been plowed. Much of it was sloping and hummocky. Like the soils of other Hunt homesteaders, his were fairly good. But in this semiarid southeastern Idaho section, crops get



A new house, to look out on new fields, was well under way by noon.

as dry as last year's gingersnap without water. Give Hunt settlers water and they grow bountiful yields of row crops, grain, and pasture. Herrmann didn't figure to do very well without irrigation.

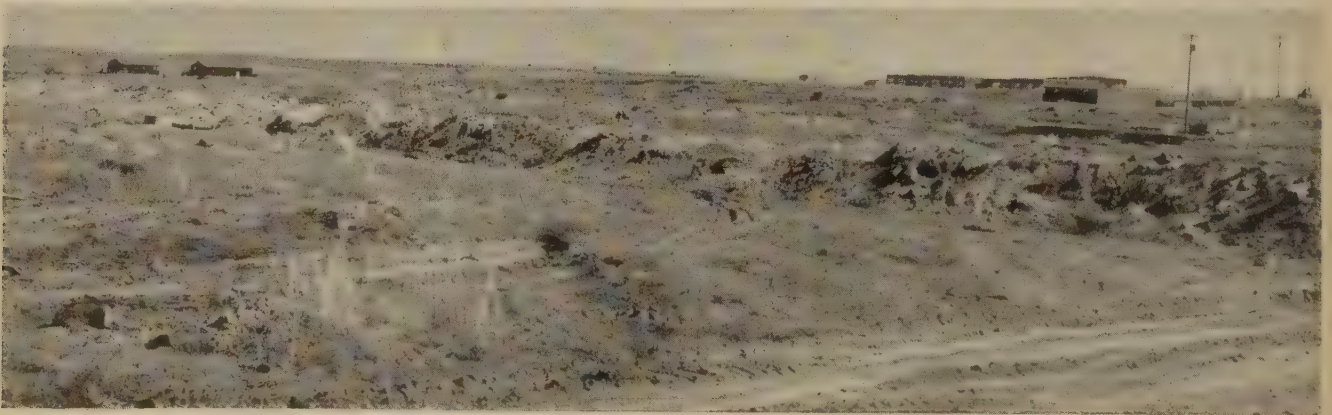
Unquestionably, Herrmann's land posed many problems. It is easy to see why the A-Farm-in-a-Day people selected his farm over dozens of others in the county. It was a challenge made to order.

When word flashed along Main Street that the "big show" would go on, just about everyone wanted to get in on it. The top man, Emory Shellenbarger, of Bishop's International Harvester Co., Jerome, actually found himself with helpers to spare.

Businessmen and farmers teamed together to help Shellenbarger and the co-sponsors. It wasn't long until nearly every group in town had an assignment. The roll included Rotary, Kiwanis, and Lions Clubs; the chamber of commerce; American Legion; Veterans of Foreign



Eden High's band made a hit with the crowd.



John Herrmann's farm was raw desert land before the big "day."



The show occupied a 128-acre stage. Here is one part of the huge throng, watching a part of the action.

Wars; the Grange; women's organizations; and such agencies as the Idaho State Fish and Game Department, the Extension Service, and the Soil Conservation Service.

Shellenbarger set up 35 key committees, among them committees for operations, program, publicity, traffic, sanitation, and concessions. Meetings were held all over town.

When it was suggested that a modern home, outbuildings, and corral be built, a deep well dug, and the acreage fenced, no one batted an eye. The idea became part and parcel of the show.

"It's wonderful," says the busy Shellenbarger, "how our community backed the show. Everyone opened his heart to the Herrmann family, and our goal of telling the West about soil conservation. Merchants and dealers gave us what we needed to build a complete farm for the Herrmanns. Jacks-of-all-trades volunteered. It wasn't hard to work the kinks out, with so many willing and able workers."

And like the most perfectly planned community events, there were stumbling blocks along the way. For example, snow which was late in melting kept the young farmer and A-Farm-in-a-Day leaders on tenterhooks. A lava bed in the path of the irrigation tile line bogged down the land-readying work. And certain materials were hard to get.

There's a good ring to the show's theme—"A conservation-minded community is a prosperous one. Treat each acre according to its needs."

Fitting well into this thinking is the farm conservation plan which local technicians of the Soil Conservation Service worked out with young Herrmann. Field operations were shaped around the plan. The soil conservationists also laid out a corrugation irrigation system, staked the land for leveling, and gave a helping hand



Cowgirls gave an authentic western touch to the big doings.



A deep lava bed in path of new irrigation pipe line bogged down operations.

to Herrmann in planning his pasture mixtures, crop rotations, fertilizing, and management methods.

An aerial rocket the morning of April 17 set men and machines in motion.

Five major "stops" were on the timetable for spectators. At each stop they got a play-by-play description of the farm-building and soil-conservation work going on by mobile sound truck. Landscape and landmarks changed before the eyes of onlookers as the raw acreage became more farmable by the hour.

Each equipment piece, from big carry alls and super-powered tractors, down to pocket-



Business was brisk at the Grange lunch counter.

sized land planes and post-hole diggers, had its followers. The bulk of the crowd fanned out over the field, moving from stop to stop. Many preferred to sit the day out at vantage points.

Visitors found the field day a multifeatured one. Here are some of the things that went into the job of building a farm for the Herrmanns: Planting of wood lot and multiflora-rose hedge, land leveling and planting, chiseling, laying of concrete pipe and riser, plowing, harrowing, disking, floating, alfalfa-grass seeding with rice hulls, pasture seeding of crested wheatgrass, corrugating and ditching, installation of water-control structures, fencing, pond and silt-trap construction, trenching for pipe line, and the laying of culverts. More than 100 pieces of equipment were in action.

A large crowd watched construction of the modern farmhouse, corrals, outbuildings, and other features. The crew of some 60 carpenters, electricians, plumbers, and roofers had the home ready for inspection by late afternoon.

At the noonday program, A-Farm-in-a-Day visitors heard Waters S. Davis, Jr., president of the National Association of Soil Conservation Districts; A. J. Peterson, manager general sales, International Harvester Co.; and J. H. Christ, Pacific regional director of the Soil Conservation Service, talk about the Nation's land and its needs. A humorous touch was given the program in the person of Dr. Elizah J. Spluttsbottom, "health expert" from Independence, Mo., and the songs and antics of the Jerome quartet.

Long before the last acre was tilled and sowed, A-Farm-in-a-Day leaders began measuring the gains from the months of planning.

Shellenbarger voiced the feelings of the 1,500 volunteer workers when he said, "Some 13,500 westerners saw what soil and water conservation work can do for raw land. And they had a chance to see how modern farm equipment ties in with good land use. By building a complete farm enterprise for the Herrmanns, we believe the A-Farm-in-a-Day opened the eyes of thousands of town and country folk to better farming methods. The big show won a host of new friends for the soil conservation district brand of farming."

The colorful event was widely heralded by radio and press. Three national networks broadcasted the activities and there were programs over the "Voice of America." On June 15, CBS spotlighted the complete Herrmann farm-building story over its program, "The People Act."

It's easy to tell a story when you have something as good to sell as good land use.

WON MERIT BADGES.—In Quinnipiac Council's first conservation camp at the West Rock Park Nature Center in New Haven, Conn., 115 Boy Scouts successfully sailed through an intensive 3-day course conducted by specialists. Subjects included forestry, soils, plants, water, and conservation planning. Charles N. Hammarlund, Jr., SCS aid and Scoutmaster of the Branford No. 2 troop, sparked the event and was camp director. As a good turn for the Nature Center, the Scouts reforested an area by planting 1,200 hemlock seedlings. Three Eagle Scouts from Charley's troop did their good turn for all the other Scouts by preparing five meals on equipment designed to feed only eight persons. The whole group received a camp emblem, and each individual got a certificate that entitles him to a Boy Scout Conservation Merit Badge.

FIELD TRANSFORMED.—In 1945 R. M. Crawford, of Summers County, W. Va., wished that a highly eroded and deeply gullied 20-acre pasture, grown up to povertygrass and sumac "wasn't part of my farm." Today it's well on the road to becoming one of the best fields in his 277 acres.

First he cleared the sumac and crab-apple growth and used it to fill some of the deepest gullies. He applied lime and fertilizer. He built a 2,000-foot diversion just above the head of the gullies; this he limed, fertilized, and manured, and upon it developed a good sod. The gullies were sloped and seeded, and deep contour furrows were installed above and below the ditch. All these treatments had the effect of making runoff water "walk" down the slopes. Walking water does not carry topsoil, lime, fertilizer, and seed off the farm. Crawford is happy now when he looks at the field.

DISTRICT PROFILE

FLORENCE CHAMBERS OF CALIFORNIA

If Miss Florence Chambers of San Diego, Calif., ever decided to add a middle initial to her name, it should be a "V," to stand for versatile. For Miss Chambers is a soil conservationist, champion swimmer, rancher, dairyist (you can't call a woman a dairyman, can you?), teacher, writer, farm hand, poet, conservationist. Putting "conservationist" in there twice is intentional. If you are introduced to her, very soon she'll find out what you know about soil conservation and it will probably dominate the conversation. So, first and last, she is a soil conservationist, but with a great deal in between.

The circus ringmaster, in announcing the star equestrienne, used to say, "She rides, drives, and has complete charge of 30 dancing, prancing horses." Miss Chambers rides and drives a tractor; but she does have complete charge of 300 animals. They neither dance nor prance but serve the much more useful purpose of daily supplying hundreds of gallons of fresh Grade A milk to citizens of San Diego County.

If Miss Chambers would not fancy a "V" for a middle initial, "C" would do as well, and it could stand for courage. At the age of nine she was injured in a streetcar accident in Los Angeles. Doctors recommended a plaster cast to hold her spine erect. But one doctor suggested that this be deferred for a year, since she was growing so fast. He recommended that she spend as much time as possible in the water. Water would support the weight of her body and permit relaxed exercise of the muscles. This was the start of her swimming career. A cast was never necessary. Determination and persistence took its place. She became an expert swimmer, winning some 300 medals and 176 trophies. She has been featured in news reels and on radio and television programs. In 1924 she was on the American team in the Olympic Games held in Paris, France, winning third place for the United States in the 100 meter backstroke swimming event. Since that time she has trained thousands of young swimmers.



Florence Chambers.

As late as May of this year she was presented with a certificate of merit and a medal, by Admiral McIntyre, in recognition of her teaching water safety to so many youngsters.

In 1949 Miss Chambers was again severely injured in an auto accident, but she would not let it handicap her activities. In addition to owning four ranches, and personally managing two of them, she is also conducting "learn-to-swim" classes for the children of her community.

Keeping up with swimming and becoming expert in that activity is indicative of her attitude toward ranching. Very early in her ranching experience she became interested in improved farming methods. She is completely convinced that modern conservation farming, based on first taking care of the soil, is fundamental to success. Her residence and home ranch are located in Poway Valley. There she operates a livestock "spread" of 1,400 acres, of which 100 acres are in grain, 25 acres in irrigated pasture, and the balance in range. Seventy-five acres of brush range were cleared and airplane-seeded to smilgrass. Results were good. Recognizing that water development and conservation are of the utmost importance in

San Diego County, Miss Chambers had a dam for water conservation and a reservoir for water storage constructed on this property. Cross-fencing for better management of stock was another conservation measure applied. This ranch has been under cooperative agreement with the Pomerado Soil Conservation District since June 11, 1946.

Another holding is the Cloverdale Ranch in San Pasqual Valley, just east of Escondido. This is a dairy enterprise of 1,295 acres, with a milking herd of 300 cows. Irrigation water is from 8 wells. About 350 acres are in alfalfa, 150 acres of irrigated land are devoted to pasture and Sudangrass, and 750 acres are used largely for grain hay. The balance is range except for the dairy buildings and corrals. This dairy is under cooperative agreement with the Ramona Soil Conservation District. Miss Chambers also has 920 acres of range property near Santa Ysabel which is only occasionally used for grazing.

Her fourth parcel—320 acres of range land—is located in the Coastal Soil Conservation District and is under cooperative agreement with that district. Livestock grazing is the use.

Florence Chambers is no “gentlewoman rancher.” She is out on the land herself from early morning to dusk. She does not hire done what she can do herself. She has personally performed a large part of the plowing, planting, and cultivating. With the help of one Mexican laborer, she not only has done the hay baling on her own ranch but in emergencies has baled for some of her neighbors as well. The stamina and endurance gained as a trained athlete enables her to perform the many and often arduous duties of managing her ranches, as well as to give of herself in promoting the cause of soil conservation.

Miss Chambers has served as a director on the board of the Pomerado Soil Conservation District and has been secretary of that board for the past 6 years. She is vice president of the Ladies’ Auxiliary of the California Association of Soil Conservation Districts and chairman of the southern California area, also chairman of the San Diego County Fair Committee.

She is a natural teacher. Whatever she learns she has a passion to pass on to others. She believes that instruction in soil conservation, as

well as in swimming, should be a part of the education of every child in the Nation. She feels so deeply about these things that she sometimes expresses her thoughts in poetry. One of her recent poems, “Sonnet to San Diego” was published in *Sunset Magazine*.

Perhaps no one else could describe so well Miss Chambers’ depth of feeling for the soil as she has done in the lines of another poem,—

“What is this overwhelming power? Whence springs life from death?”

And Mother Nature answers, “‘Tis the soil that gives her breath.”

—FRED W. HERBERT.

DAUGHTERS OF THE SOIL

By A. B. FOSTER

THE hand that rocks the cradle is also helping direct America’s conservation of soil resources.

As George Peterson, editorial writer for the Minneapolis *Star-Journal* says, “Soil conservation used to be considered strictly male territory. Now the women want in. Not only *want* in . . . they *are* in.”

In Freeborn County, Minn., the wives of the five soil conservation district supervisors became weary of staying home nights while their husbands were in session. So they tagged along, held get-togethers of their own, and soon organized the Daughters of the Soil. Other districts saw similar developments, and now there is a Minnesota State organization.

It started one evening in July 1949. The supervisors of the newly organized Freeborn County Soil Conservation District were holding their monthly meeting at Albert Lea. They meet the first Thursday and come from five different parts of the county. As usual, their wives came along, but instead of going to a show, shopping, or sitting in their cars waiting, on this particular night they had a meeting of their own. They met at the home of Mr. and Mrs. George Kelly. Kelly is farm editor of the Albert Lea

Note.—The author is head, regional education, Soil Conservation Service, Milwaukee, Wis.



"Daughters" work on plan of operation, with district directors giving "advice" over their shoulders.

Tribune. With them were Mrs. E. W. Miller, wife of the SCS farm planner, and Mrs. Bob Jacobs, wife of the county agent. The meeting was largely social, and after the supervisors had concluded their business, they joined the ladies for refreshments.

The party was so successful that, the next time the supervisors met, the womenfolk assembled at the home of one of the supervisors, Mrs. George Hunte, which is about 15 miles north of Albert Lea. Again, the supervisors, on finishing their business, came over for a social gathering and refreshments.

At the third meeting the ladies got down to business themselves, formed an organization and elected officers. Thus was born the Daughters of the Soil, Ladies' Auxiliary of the Soil Conservation District Supervisors.

One of their purposes was to learn more about soil conservation. They worked up a good calendar. They attended a meeting of district supervisors to see how a district is run. They listened to talks by Soil Conservation Service technicians and vocational agriculture teachers, and went on tours of farms.

Their outstanding achievement that first year may have been an open meeting in the high-school auditorium in Albert Lea with Dr. M. M. Hargrave of the Mayo Clinic as speaker. Dr. Hargrave talked on "The Relationship of Soil Fertility to Human Health."

The men were so impressed that they invited the wives of all Minnesota supervisors to attend their State convention at Winona. Women in districts other than Freeborn County had heard of the Daughters of the Soil. They formed tentative organizations of their own, and at the Winona convention they held separate sessions.

Mrs. Koren Johnson, president of the Freeborn chapter, presided. One result was the appointment of a committee of three women to draw up a State constitution and to encourage formation of other chapters. This was in the spring of 1951.

By the time of the next annual meeting of the Minnesota Association of Soil Conservation Districts, bylaws were ready and the State organization was in full swing.

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AN AWARDS PROGRAM THAT G-R-O-W-S AND G-R-O-W-S

By ARTHUR G. MORRILL

THE Goodyear Soil Conservation Awards on July 1 entered its sixth straight year. After three highly successful years in the States included in Region 3 of the Soil Conservation Service, the program has shifted its drive to the nine States in Regions 4 and 5.

Thus far, over 1,000 districts and more than 15,000 individuals have participated. Nearly 10,000 farmers and other friends of conservation have attended Goodyear's 41 State-wide awards luncheons. Expense-free vacation outings in Arizona have been enjoyed by 196 supervisors and outstanding farmers from 17 States. Cash awards have been made to 56 individuals and 24 district governing bodies.

Handsome bronze plaques signifying first, second, and third places in soil conservation accomplishment have been given to 396 winning districts and outstanding farmers. Almost 4,000 certificates of meritorious achievement in the cause of good soil conservation practices have been awarded to participating farmers.

The 1952-53 contest is similar to previous programs, although the score sheet has been revised to conform more closely with the NASCD's "Program for Greater Service."

This action on the part of Goodyear involves rearrangement of material on score sheets rather than actual revision of subject matter. An item-by-item check showed that Goodyear was utilizing the activities recommended in the "Program for Greater Service." For the sake of clarity and consistency, however, material was arranged to accord with the committee system used by the National Association.

Accordingly, the Goodyear score sheet now has a section entitled "Organization and Activities of Committees to Assist District Governing

Body" broken down as follows: (a) publicity committee, (b) education committee, (c) finance committee, (d) legislative committee, (e) program committee. Seven hundred points out of a total of 3,000 are devoted to this section.

Another feature of the new score sheet is the incorporation of certain conservation practices which will enable ranching districts to compete on a more equitable basis with general-farming areas.

Following discontinuation of the Goodyear program in Region 3, four of the eight States concerned have adapted the Goodyear contest to a local program, sponsored by State associations or private businesses. Two of the remaining States have announced intention to sponsor or get a sponsor for this type of program.

The Association of Illinois Soil Conservation Districts is sponsoring the Goodyear contest, guided by the program committee for the State. The executive committee worked out a simplified report blank, which is to be sent in at the end of each month to be judged by persons selected by the State association. Winners will be announced at the annual meeting of the association.

In Indiana the Farm Bureau has taken over the Goodyear contest idea. Winners will get a 3-day trip, and others will receive recognition.

In Iowa the program goes on under the sponsorship of the Iowa State Association of Soil Conservation Districts and the State Soil Conservation Committee. Awards are being made available by the Lee Syndicate, a chain of newspapers and radio stations. The score sheet has been revised to meet Iowa conditions. A cash award of \$60 is offered to the winning district.

Missouri Soil Districts Commission endorsed the continuation of the Goodyear idea. The St. Louis *Globe-Democrat* is sponsoring the new program which follows the Goodyear format.

Michigan and Ohio plan awards programs similar to Goodyear's next year.

Note.—The author is director, Soil Conservation Awards Program, Goodyear Tire & Rubber Co., Akron 16, Ohio.

Waters Davis, president, presents NASCD's distinguished service award to R. S. Wilson at Association's annual convention.



On completion of the contest project in Region 3, R. H. Musser, SCS regional director, had this to say:

"Goodyear has made a wonderful contribution to soil and water conservation. They have made an unusually fine contribution to the soil conservation districts in this region. I know that every district that has participated in the program, and most all of the other districts that have known about it appreciate it very greatly."

G. S. McIntyre, deputy commissioner of agriculture in Michigan, who served as a member of Goodyear's advisory committee in the region credited the program for having carried out its objective when he said:

"I have enjoyed working on this committee the past 3 years and believe that the contest has been very worth while. It has stimulated the district directors to carry out a much broader soil conservation program than they otherwise would have."

The National Association of Soil Conservation Districts at its annual convention in Cleveland, Ohio, this year conferred a distinguished service award on R. S. Wilson, vice president of the company. It was he who originated the awards program following a completely satisfying experience working with his local soil conservation district and with members of the Soil Conservation Service on his own farm near Cadillac, Mich.

Judges for the 1951-52 contest included:

Arkansas.—D. D. Terry, director, Division of Flood Control, Water and Soil Conservation, Resources and Development Commission, Little Rock; Dr. Lippert S. Ellis, dean and director, College of Agriculture, University of Arkansas, Fayetteville; J. V. Highfill, State director, Farmers Home Administration, Little Rock; C. R. Wilkey, State supervisor of vocational agriculture, Department of Education, Little Rock; Hollis R. Williams, State conservationist, Soil Conservation Service, Little Rock; and J. L. Wright, chairman, Arkansas State Committee, Production and Marketing Administration, Little Rock.

Kansas.—William H. Teas, assistant State conservationist, Soil Conservation Service, Salina; Floyd Smith, agronomy department, Kansas State College, Manhattan; George W. Reinhart, chairman, State Soil Conservation

Committee, Parsons; Emil Heck, Sr., chairman, State Association of Soil Conservation District Supervisors, Lawrence; and Reuben C. Lind, extension conservationist, Kansas State College, Manhattan.

Louisiana.—R. A. Wasson, agronomist of the agricultural extension division; Prof. E. B. Doran, head of the agricultural engineering department; Dr. W. J. Peevy, agronomy department, all of Louisiana State University, Baton Rouge; and H. B. Martin, State conservationist, Soil Conservation Service, Alexandria.

Montana.—John Buttleman, president, Montana Soil Conservation Committee, Willow Creek; Stephen Urs, agricultural representative, First National Bank, Glasgow; Clarence Popham, State Board of Education, Corvallis; Carl Parker, range specialist, extension service, Montana State College; and Ernest H. Sandberg, assistant State conservationist, Soil Conservation Service, Bozeman.

Nebraska.—Albert W. Watson, president, State Association of Soil Conservation Districts, Wayne; Everett Barr, vice president, State Association of Soil Conservation Districts, Liberty; and A. R. Marquardt, Soil Conservation Service, Lincoln.

North Dakota.—Math Dahl, commissioner of agriculture and labor, Bismarck; Lyness G. Lloyd, State conservationist, Soil Conservation Service, Bismarck; Leroy Pease, executive secretary, Greater North Dakota Association, Fargo; E. J. Haslerud, director of extension, State College Station, Fargo; and A. D. McKinnon, executive secretary, State Soil Conservation Committee, Bismarck.

Oklahoma.—Word Cromwell, executive director, State Soil Conservation Board, Oklahoma City; H. M. Chambers, State conservationist, Oklahoma City; Edd R. Roberts, extension soil conservationist, Oklahoma A. & M. College, Stillwater; George H. C. Green, chairman, agricultural committee, Oklahoma State Bankers Association, Oklahoma City; and Ferdie Deering, editor, *Farmer-Stockman* magazine, Oklahoma City.

South Dakota.—L. V. Ausman, secretary, State Department of Agriculture, Pierre; Bernard Linn, commissioner, School and Public Lands, Pierre; George I. Gilbertson, director of extension, Brookings; Raymond Lund, agricul-

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SCHOOL CHILDREN BECOME PARTNERS OF DISTRICT

By EARL E. FENTON

IN a novel experiment to overcome the scarcity of seedling trees for planting stock, the directors of the Barry Soil Conservation District in southeast Michigan think they have found the solution in small individual seedbeds. And since the trees are produced as Future Farmers and 4-H Club projects, the added dividend from teaching tree lore to the district's school children may be worth even more than the rough hills and sandy plains that are being reforested.

From the beginning of the district, the directors have recognized the need for planting trees. Nearly every farm has an area on which good land use is a matter of reforestation. The usual forestry demonstrations such as planting, Christmas-tree pruning, and disease control were utilized. Planting stock was furnished on a 50-50 matching basis, and a tree-planting machine was made available. But encouraging as were the results, Chairman Bill Cridler and the other district directors were anxious to get the trees planted faster.

The individual seedbed project was started in 1950, after the difficulty of securing planting stock had extended over several years. The Hastings Kiwanis Club and the Michigan State Soil Conservation Committee helped finance the project. The program began with demonstrations for the pupils on seedbed-site selection, soil preparation, and seeding and care of the beds. These demonstrations were carried on by County Agent Arthur Steeby, SCS Farm Planner John Hamp, and the Michigan State College forestry department. Seed and materials for constructing the beds were provided by the district.

During the spring of 1950, 40 seedbeds were established—38 by FFA members and 2 by 4-H Clubs. The following year 100 new beds were established. The beds are about 3 by 5 feet and will average 2,000 seedlings per bed. This project, with increased participation by FFA

Note.—The author is district conservationist, Soil Conservation Service, Portland, Mich.



These junior foresters, with teacher supervising, plant white spruce in windbreak for school grounds. (Photo courtesy of *Prairie Farmer*.)

students, 4-H Club members, and others, was again carried out in 1952. Several hundred thousand seedlings from the beds increased the planting stock needed in the district's reforestation program.

Although the Barry Soil Conservation District junior forestry program is supplying planting stock needed now, it is equally a project for the future. Reforestation in the district is a big job that can't be done in one generation. The junior forestry program is training the generation that will soon have to take over. In developing the project, the directors had the enthusiastic support of County Superintendent Arthur Lathrop, in addition to the help of agri-

cultural workers. To win the grade of junior forester a student must complete a specified course of study. This course includes the writing of essays, identification of trees, field trips, and group discussions. Every junior forester must plant 10 trees supplied by the district.

During the 1951-52 school year, 67 rural school children and 29 Nashville fifth-grade students completed the course and were presented badges by the district. Teachers and students in other schools are asking for help in adopting the program and an advanced course is being planned.

DAUGHTERS OF THE SOIL

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The bylaws state some of the objectives as follows:

1. To promote the business of agriculture, and the public health and welfare, and a more abundant love for farm and family life.

2. To render mutual assistance to the Minnesota Association of Soil Conservation Districts in carrying out its State-wide program of soil and water conservation.

3. To advance the interest of the women of the State and secure closer cooperation between husbands and wives in soil conservation practices.

4. To secure more nutritious foods and enhance approved healthful preparation thereof for the betterment of family health.

5. To encourage all members of each family to participate more wholeheartedly in public problems.

6. To educate the children to use each acre of land within its capabilities—and to treat the soil in accordance with its needs for protection and improvement. To educate the children so that they will also preserve and use all other natural resources for the advancement of a better life.

7. To sponsor public meetings and arrange programs in the furtherance of these objectives.

Membership is open to any woman in the State who is interested. She need only sign the register and pay annual dues of 25 cents.

A regular annual meeting will be held each year at the time and place of the annual conference of the Minnesota Association of Soil Conservation Districts.

Mrs. Burton Chambers of Owatonna, Minn., is State president. Her husband is one of the supervisors of the Steele County Soil Conservation District.

Mrs. Koren Johnson, president of the Free-born group, explained, "We had suspected our husbands were attracted by the sociability of those monthly meetings of supervisors. But when we saw how deeply involved they were in district work, we caught their enthusiasm and started our club."

That just about sums up what is back of this new group of soil conservation crusaders.

PROGRAM THAT G-R-O-W-S

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tural agent, Chicago & Northwestern Ry., Rapid City; and Ross D. Davies, State conservationist, Soil Conservation Service, Huron.

Wyoming.—J. A. Bartruff, assistant State conservationist, Soil Conservation Service; A. V. Hay, agriculturist, Bureau of Reclamation, and Max Stevens, vice president, Wyoming National Bank, all of Casper; Percy Kirk, State vocational agriculture supervisor, of Cheyenne; and Louis Schilt, county agent leader, agriculture extension service, of Laramie.

As this magazine went to press, it was planned to announce the winners for 1951-52 in August. And the nine State-wide recognition luncheons this fall were to be held as follows:

Huron, S. Dak., September 16; Bismarck, N. Dak., September 18; Billings, Mont., September 23; Casper, Wyo., September 25; Lincoln, Nebr., September 30; Wichita, Kans., October 7; Oklahoma City, Okla., October 9; Little Rock, Ark., October 14; and Alexandria, La., October 16.

In December, the 70 winners of the 1951-52 contest will enjoy the fruit of their outstanding efforts in the soil conservation cause when they entrain for Wigwam guest ranch, Litchfield Park, Ariz., for a 7-day carefree vacation.

Goodyear officials are tentatively planning to move the Soil Conservation Awards program to still another region on conclusion of the current contest June 30, 1953.

PARTNERS.—In 3 projects, the town of Hadley, Mass., 17 farmers, and the Hampshire Soil Conservation District have teamed up in 2 group drainage projects involving the Connecticut River and a fire-protection pond in the Hockanum area.

DOING THE CONSERVATION JOB TOGETHER

Excerpts from an address by Dr. Robt. M. Salter, Chief, Soil Conservation Service, at a joint meeting of Department agencies, Manhattan, Kans.

The conservation job with which many of us are primarily concerned is too big for any one, two, or three agencies or organizations—no matter how efficient they are. It demands our own fullest energies, and more. It calls for the closest working together by the local, State, and National agencies concerned, along with soil conservation districts, watershed associations, conservation organizations, and business, industrial, and civic groups.

...

One of my goals as Chief of the Soil Conservation Service is to do what I can to bring about a more unified national program of soil and water conservation.

...

The Nation can't afford to wait or to rely on piecemeal measures, and to allow our soil resources to deteriorate further in the process. I am convinced that the urgency of the national interest justifies doing everything possible to help farmers get more of our improved technology into use on the land, at the earliest practicable date which available manpower and other facilities will permit.

...

When we talk about making all segments of our system fit together better and work more effectively in helping farmers, we need to look at the component parts involved in getting improved technology applied to the land. They are: Education, technical assistance, and financial assistance. All three are necessary. Instead of duplicating each other, each supplements the other; each one fills a specific need.

...

To help speed up its assistance to farmers, the Service for its part has developed streamlined methods designed to reach many more farmers each year than we had been able to

reach before. This "progressive planning," as we have come to call it, is in three stages:

The *initial* stage of simple agreement to conservation land treatment, use, and planning.

The *advanced* stage of beginning to develop a basic conservation plan.

The *basic plan* stage itself.

The Service supplies progressively more technical assistance as the farmer is ready and able to move ahead with his progressive planning. This procedure enables a farmer to start gradually and move progressively into a sound, well-rounded conservation system. It encourages him to make more decisions himself without lowering the technical accuracy of the plan. And it permits group action in a neighborhood without the necessity of all members of the group going ahead at the same speed.

...

Record floods on the Missouri last year and this year, and damaging floods every year on small streams and large in different parts of the country, have directed renewed attention to this serious problem. The need is pressing for moving ahead faster on watershed development—including soil, water, and forest conservation and upstream engineering works on the smaller tributaries—to supplement the downstream flood-control measures on the main stems of our principal streams. We are making progress in that direction, and it is to be hoped and expected that this vitally important work will be accelerated in the future.

...

It is estimated that by 1975, the demand will be 20 to 25 percent greater than our current production. It is true that there are sizable opportunities for bringing idle or unproductive land into use, as through irrigation in the West and through drainage of some lands not more essential as wildlife habitat. But there is not enough new land in sight, by any means, to meet the anticipated increasing demands of the future. Instead, we will have to depend largely on increasing per-acre yields, on grassland and tree land as well as on cropland.

FOOD IS TOPIC at INSTITUTE

“NATURE is not something that can be viewed objectively from afar. Man is a part of the whole.”

Thus did Jonathan Forman in July, at Chicago, bundle up the idea behind the Eleventh Annual Institute on Conservation, Nutrition, and Health.

The accent this year was on the second of the three related spheres of interest. And, appropriately, most of the sessions were held at the medical center of the University of Illinois. At least 20 doctors and educators from 12 States lectured to an erudite audience of 200, and led discussions which at times became debates.

Many aspects of food were examined—food for plants and animals and human beings—the economics of production and consumption, growth factors, the improvement of the race, food's chemistry and mineralogy, its biological aspects, and its role in connection with the young, the aged, and the afflicted. Several speakers dealt with the packaging of food and closely allied topics.

The application of ecological knowledge to water conservation and to grassland utilization was treated by two leading technicians from the Soil Conservation Service—Lloyd Harrold,

of the hydrologic experiment station at Coshoc-ton, Ohio; and A. D. Stoesz, of the regional nursery division at Lincoln, Nebr.

The series of institutes, which is sponsored by Friends of the Land, has helped to direct the attention of teachers, scientists, and laymen to the importance of soil stewardship to daily living. Out of these institutes, with the focus slightly shifted each year, has come a rich fund of information which has been made available to the public as separate papers and in the form of anthologies published in book form. The list of speakers is impressive for their names and reputations, the variety and standing of their affiliations, and for the weight of thinking they have to offer. These lecturers have done much to arouse citizens everywhere and to channel their concern for the present and future of the American land; they have greatly enhanced the reputation of Friends of the Land in the process.

High lighting this year's program were Louis Bromfield, famed novelist and the traditional after-dinner speaker; Clive M. McCay, of Cornell University; and Edward J. Condon, president of Friends of the Land, who restated expertly the objectives and accomplishments of the society.

Ollie E. Fink and Jonathan Forman, the team of officers whose genius is responsible for the origination and development of this notable institute, opened and closed the forum.

—WELLINGTON BRINK.

HERE'S FARMING AS IT OUGHT TO BE

By ROBERT E. LEE

IF you want to see good farming by America's master farmers, visit the LaCrosse area in southwestern Wisconsin. Here you will see farm after farm where the soil is firmly anchored to the steep slopes by good conservation practices and sound land use. Drive southeast of LaCrosse on Highway No. 33 and follow

St. Joseph Ridge to the William Schams farm. Bill and his family own and operate 440 acres. Son Gerald lives on the farm and is the mainstay for the farming operation. The Schams are conservation minded and it shows on every acre of their productive farm.

Take, for example, one of the pastures. Most of it is renovated, but there is enough of the old pasture remaining to make a good check plot. Here on this steep land alfalfa, brome,

Note.—The author is district conservationist, Soil Conservation Service, Viroqua, Wis.



This is Mormon Coulee, near LaCrosse, the cradle of strip cropping in the United States.

and a complete grass and legume mixture are belly high to Bill's fat Holstein cattle. On the unrenovated plot, the grass couldn't begin to support half of the animals per acre now grazing on the improved area. In order to improve the remaining pasture, the Schams recently completed a diversion terrace to reduce the risk of erosion by runoff water while the new grass gets a start.

Practically every acre of the cropland is in strips and some of it is terraced. On this productive land, nearly all of the feed is raised for Bill's 100 head of dairy animals. His corn production has averaged close to 100 bushels per acre. With the strip farming, he uses good rotations with grass legumes to keep the soil fertile.

Here the Schams and their eight children exemplify gracious living. Bill was one of the

very first supervisors of the LaCrosse County Soil Conservation District and, of course, he is a cooperator with the district on his own farm. His neighbors up and down the road are conservationists, too. They take pride in their "stay-at-home" soil which returns them a bountiful living. They have found the meaning of true conservation. Although strip cropping makes the LaCrosse area a show place, nowhere will you see better pastures or sounder cropping practices. Here good land use is a byword.

From a high point a visitor can see forests on the sharpest slopes and pasture on steep land that needs a protective grass cover. He can see cropped fields winding along the gentle slopes near the valley floor. A recent visitor

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FIELD TRIPS HELP TEACH GEOGRAPHY



Miss Wheeler and student committee discuss soil conservation problems.

By L. LEFORREST MILLER

THE geography students of Manual Training High School at Peoria, Ill., where I used to teach, are getting first-hand knowledge of soil conservation as a result of field trips with SCS technicians. The emphasis on land use began in 1947 when I was asked by a geography teacher, Miss Estella Wheeler, to help with a geology field trip. Since then the two of us

have arranged one or more field trips each semester.

The main purpose of the trips is to study soil conservation practices and objectives. In addition to my own instruction, information on current soil conservation projects is supplied by L. R. Jordan, work unit conservationist for the Peoria Soil Conservation District, who occasionally accompanies the classes.

The usual procedure is to stop first at selected locations to examine soil profiles and discuss basic factors involved in soil formation. In this way, the students learn to appreciate the factors

Note.—The author is a soil scientist for the Soil Conservation Service, Peoria, Ill.



L. LeForrest Miller shows students a dark-colored prairie soil.

which effect soil changes and soil removal. At other locations the students study areas where damage has resulted from poor land use. Then they are shown good soil conservation practices and examples of good land use. Discussion includes land-use capability as a practical concept for dealing with soil conservation problems. This is important to geography students because *the modern geographer is concerned with proper adjustment of man to his natural environment.*

One worth-while result has been the production of a soil conservation film strip called, "Standards at Stake." It was prepared by the public-relations department of the Keystone Steel and Wire Co. of Peoria, with my assistance. The film strip shows the relationship of living standards to correct land use and soil conservation. Future plans include its use both

by school classes and by Keystone in its educational work.

The conservation studies at Manual Training High School were described recently in a seven-column, illustrated news story in a local daily paper. This and other publicity has greatly increased the demand from urban groups for more information on soil and water conservation. Technicians have been asked to appear before farm managers, teachers, and city luncheon clubs, in addition to elementary and secondary school classes and college groups.

MAGAZINE FOR SCHOOLS.—Many schools report that SOIL CONSERVATION Magazine is proving useful to geography, biology, botany and conservation classes. School libraries may subscribe at \$1.25 per year. See inside of front cover for further information.

A SOLDIER AND HIS FARM

By VIRGIL S. BECK

BOTH Gen. Lowell W. Rooks, United States Army, (Retired), and the colorful Pete Kitchen faced problems on the same land.

General Rooks, a distinguished veteran of two world wars, has been confronted with a drainage problem on his 26-acre farm about 3 miles north of Nogales. The general's small holding is part of the famous 1,000-acre Potrero Ranch which Kitchen operated in the 1850's, in defiance of the murderous attacks of the Apaches.

The general is a native of the State of Washington. He was graduated in engineering from the University of Washington in 1917.

After the First World War, General Rooks was stationed at the now-abandoned Camp Little near Nogales. There he took a liking to a little dairy farm which he learned was one of the many small farms cut out of the old Kitchen ranch. The history of Pete, the pioneer, interested the general.

In his book, "The Story of Don Pedro and the Potrero Ranch," J. A. Rockfellow reported that Pete Kitchen was Don Pedro to his many Mexican friends. He was born in Pennsylvania or New Jersey, migrated to Kentucky and then, in 1853, at the time of the Gadsden Purchase, to Arizona. Kitchen built his adobe house on a rise above Potrero Creek. The adobe walls of the house extended 3 to 4 feet above the roof to provide protection from the Apaches. He raised corn on land irrigated by Potrero Creek.

Frank C. Lockwood, in a chapter, "Pete Kitchen—Rifleman and Ranchman," from "Arizona Characters," reports that Kitchen was the only settler whom the Apaches could not dislodge. They shot his pigs so full of arrows that they looked like "walking pincushions." Kitchen's ranch took in about 1,000 acres of rich bottom land, and he raised large crops of grain, potatoes, cabbage, and an abundance of fruit and melons.

Note.—The author is in the information division, Soil Conservation Service, Albuquerque, N. Mex.



Gen. Lowell W. Rooks.

A personal item in the *Tucson Citizen* of June 15, 1872 reported that Pete Kitchen's crops all were good. He had in 20 acres of potatoes, had cured 14,000 pounds of choice bacon and ham, and had marketed 5,000 pounds of lard.

General Rooks decided he wanted to live here when he retired from the Army, but that was far in the future.

In World War II, General Rooks commanded

the Ninetieth Division, was in the Normandy Invasion, the Battle of the Bulge, and served on General Eisenhower's staff. After he retired from the Army, the general returned to Nogales and bought the 26 acres that had been a dairy farm back in the twenties. However, the tract now was grown up in willows and cottonwoods and only a small patch was in cultivation.

The general wanted to get his little farm in first-class shape, so he sought the aid of the Santa Cruz Soil Conservation District and signed a cooperative agreement in 1950. W. G. Williams, SCS technician, helped plan a conservation program.

First, the 22 cultivated acres were finish-leveled and divided into three fields, after willows and cottonwood trees had been removed. Wells for irrigation and domestic use were drilled. An irrigation system was installed with one turn-out per border, and the fields were ripped and subsoiled so the heavy soil would absorb water more readily.

Meanwhile, the old adobe house had been enlarged and modernized, and the general and his wife moved in. The veteran soldier was not to enjoy his retirement for long. In October 1950 he was called by the State Department to handle an assignment in England, from which he returned a year later.

The general found that he was confronted with a serious problem. There was a high water table near the center of his cropland, notwithstanding the fact that several dry wells had been drilled within a few hundred yards. The irrigation well in the middle field was almost artesian, the water standing in the casing at or above ground level most of the year. Water was seeping up around the well casing and had created a marsh or bog of about 6 acres. This made it impossible to use the ends of the field, and about 10 acres were lost from cultivation. It had been impossible to plant some of the field in 1951, and what corn was grown couldn't be harvested.

General Rooks and SCS technicians finally undertook to blast a 500-foot drainage ditch from near the irrigation well to Russell Creek. Hand digging followed.

Within a few weeks the bog drained and

dried out. A flowing spring on a nearby hillside also went dry. Now, General Rooks plans to deepen the ditches and put in tile drains.

The blasting and digging cost around \$300, and now it will be possible to use the 10 acres of wasteland which the general estimates to be worth from \$400 to \$500 per acre.

General Rooks now plans to seed his three fields to permanent irrigated pastures and start raising purebred livestock. Grazing will be rotated among the three pastures, one being irrigated while the others are grazed.

Today, General Rooks and his wife are enjoying retirement in the beautiful home they have made of the ancient adobe structure.

Just as the picturesque Pete Kitchen faced the challenge of the Apaches and won, so does the colorful General Rooks face a challenge to make his farm highly productive, and this he intends to do by making the best possible use of his soil and water resources.

FARMING AS IT OUGHT TO BE

(Continued from page 65)

was Morris Fonda, public relations director of a large implement manufacturer. "When we needed soil conservation pictures, we immediately thought of Wisconsin," he said. "We came all the way from Detroit to the LaCrosse Soil Conservation District to get the pictures we wanted."

When you visit the LaCrosse area, be sure to stop at Bill Schams' place. He'll show you what he and his neighbors are doing about soil conservation.

DOWN THE RIVER

(Continued from page 50)

use of garden clubs, civic groups, schools, and other organizations—a good foundation on which to build a knowledge of one of our greatest national problems and its solution.

Complete details on how to obtain copies in varying quantities may be obtained from H. Wayne Pritchard, executive secretary, 1016 Paramount Building, Des Moines, Iowa; or Herschel Hecker, chairman of chapter activities committee, 434 N. Plankinton Ave., Milwaukee, Wis.

IT TOOK A COMPLETE PLAN TO STOP SOIL LOSSES

By H. J. HARDY

STRIP cropping seemed like an unimportant conservation measure to Johnnie Williams, Negro cooperator in the Aiken (S.C.) Soil Conservation District, until the spring of 1946.

That was the year that wind erosion blew so much sand out of his fields that it made the road by his farm almost impassable, and the county had to haul it out.

Williams, who owns four farms in the Salley community, got a district conservation plan in 1941, but the only practices he established were a complete terrace system and 3 acres of kudzu. Water erosion continued to carry off valuable topsoil from 1941 to 1945 to such an extent that terraces had to be repaired before they could be plowed for maintenance in the winter of 1945-46.

Then came wind. When Williams checked his row crops and the road by his farm, he was sick about it all. Crops had to be replanted and terraces repaired.

I was just as anxious as Williams to correct this condition. We got together during the summer months and worked out a new plan for the farm. Williams first agreed to use strip cropping with small grain and later put in perennial crops in place of some of the small-grain strips.

As replanned, the 97-acre home farm included 34 acres of woods, 51 acres of cultivated land, 4 acres of sericea for hay and grazing, 4 acres of temporary pasture, 1 acre of orchard, and 3 acres in two house sites.

With the terraces already built, the plan was set up for a strip rotation with Dixie wonder peas and blue lupine as winter legumes, and crotalaria and cowpeas as summer legumes. Hairy indigo was included later.

Strips of small grain on every third terrace interval were planted during the fall of 1946

and, with contour cultivation, have become an outstanding feature. A similar program was set up for the three other farms owned by Williams.

"I strip crop my farms each year because that's the best method I know to maintain rotations, hold soil in place, and keep up fertility," this farmer says. "My tractor and mules never have to strain, as all row-crop farming is done on the level.

"Wind erosion no longer bothers me and the yields of all of my crops are increasing. I produce an average of a bale of cotton, 40 bushels of corn, 20 bushels of wheat, 50 bushels of oats, and 1 ton of hay per acre. That's about three times as much as I produced 10 years ago."

The farm is mechanized with tractor, reaping binder, combine, grain drill, mowing machine, lime spreader, hay baler, pea thresher, disk harrow, stalk cutter, and two trucks.

Williams is a community leader and heads many local clubs. His neighbors respect his ability very highly.

NOTES FROM THE DISTRICTS

ENTERPRISING GIRL.—Supplying soil conservation districts with materials needed for conservation plans offers an opportunity for enterprising young men and women.

One young woman who makes the most of this opportunity is Lucille Lindemood, 19-year-old daughter of Mr. and Mrs. Clate Lindemood, 25 miles northwest of Mohall, N. Dak. Her products are seedling trees for shelterbelts and farmstead windbreaks in the Renville County Soil Conservation District. District supervisors buy and resell the trees to cooperators.

Sales in 1951, her third year in the work, totaled 8,000 and netted enough for a vacation in California.

Her father is a cooperator himself, and Lucille has been active in 4-H Club work. She hit on the idea of raising seedling trees as a project in 1949, and the first year she raised 2,000 salable seedlings, seed being furnished by the Extension Service.

The following year, she expanded her business on a plot assigned by her father. To the three species she

Note.—The author is Negro work unit conservationist, Soil Conservation Service, Aiken, S. C.

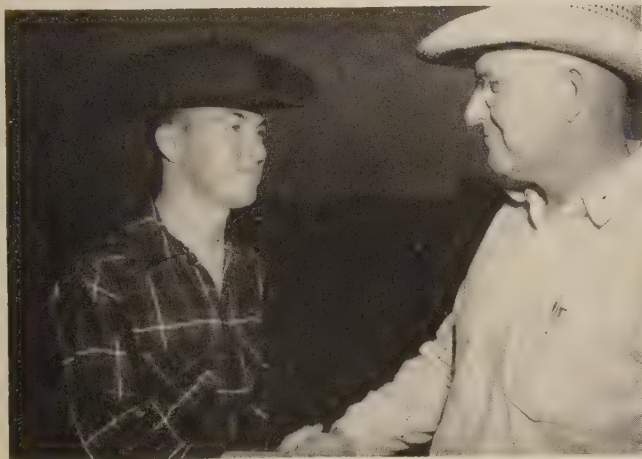
produced in 1949, she added willows grown from cuttings gathered in the neighborhood. Her second year's output was 3,000. The 8,000 trees produced in 1951 were of premium quality.

How far Lucille Lindemood will go on her project is undecided. It already has provided generous spending money, and it demonstrated the possibilities for other young people to earn money and at the same time supply materials that soil conservation districts need. Other possibilities include picking or collecting tree and shrub seeds for sale to SCS and other nurseries. Instructions on handling seed can be supplied by local SCS technicians.

CONSERVATION FARMER OF THE WEEK.—The Catawba (S. C.) Soil Conservation District regularly during the summer months selects a "Conservation Farmer of the Week" for special recognition.

A tour to see the conservation operations of each such farmer is sponsored by the district on Wednesday afternoon, when most business houses there are closed.

With the support of the Rock Hill Chamber of Commerce, the tours are attracting many townsmen, who enjoy an afternoon on a conservation farm while business is suspended.



Rescued and rescuer.

RESCUED FROM FLOOD.—John O. Simpson, SCS work unit conservationist at Comanche, Tex., was trying to get to his home in De Leon. Up to 20 inches of rain had fallen during the day along Green and Cow Creeks in the Upper Leon Soil Conservation District. The creeks were overflowing bottom lands. Bridges were out. Water blocked roads and highways.

It was close to 6 o'clock when Simpson got out of his car near the Cow Creek bridge to take flood pictures. The water was 2 feet deep on the pavement, and even deeper in the fields.

Simpson heard a call. He looked up and saw a youth in a tree about 35 feet off the highway. He told the fellow to stay there until he could get a rope.

Simpson got a rope at a farmhouse, tied it to a block of wood, and threw it to the youth. Then he pulled the lad through the floodwater to the pavement.

The youth was Joe Havis, whose home was nearby. He and a friend, Jack Harrell, both students at nearby Tarleton State College, had started out in the afternoon in Jack's car to see how high the creeks were rising.

"There was a sudden rise of water," Joe says. "The motor drowned out and the car started slipping. We got into deep water and decided we'd better get out. I couldn't open the door. I got out a window and made for the tree. I looked around but Jack and the car had disappeared. I was in the tree about 3 hours. I was mighty glad when Mr. Simpson came along."

Jack Harrell was drowned.

—W. R. HEIZER.

A TIME TO REJOICE.—It isn't often that you hear of a farmers' "coffee and sinker" party like the one put on not long ago by landowners along a 5-mile stretch of Upper Muddy Creek, in Linn County, Oreg.

The purpose was to give all the farmers sharing in the work of harnessing the rampaging creek an evening in which to hail a job well done.

This farmer "mixer" probably was unlike any other country social you've ever heard about. Held in the home of Charles Swango, who farms not far from Harrisburg, it was an occasion for celebrating the successful ending to costly farm flooding. The evening will be long remembered as the setting for a lot of friendly backslapping, handshaking, and rejoicing.

The 26 farmers who teamed up to boost production, and drain swampy land that had low wildlife value, have a lot in common now.

Instead of putting off spring tillage and planting work for weeks on end, as has been the case for many seasons, this group of Muddy Creek farmers is now able to cultivate and sow much earlier. And every



Upper Muddy Creek has a new look. The channel now carries water safely past farm lands.



These farmers worked well as a group, and celebrated together afterward.

farmer knows that a longer growing season means money in the bank.

The prospects of better yields on crop and pasture lands adjacent to the Upper Muddy Creek channel are welcomed by the whole community. Year in and year out their farm lands on the southern fringe of the Willamette Valley were ponded and waterlogged in early spring and late fall. Each year many acres of fall-planted grain and seed crops were drowned out. Often spring soils were too wet and cloddy to till. Sizable acreages of pasturage were short-lived and curtailed as top forage producers.

It wasn't until the farmers banded together under the guidance of the Linn-Lane Soil Conservation District, a year ago, that they began to cope effectively with the whims of the old meandering stream.

When SCS technicians surveyed the channel and worked out plans with the farmers for controlling the stream, they set the cost of development at \$14,000. Half the amount was to be borne by the Production and Marketing Administration, the rest prorated among the 26 district cooperators.

The job of straightening and deepening the channel and clearing it of trees and brush was turned over to W. G. Monson, a private contractor, last summer. Final touches on the channel were completed early this year.

"We couldn't have put our money to better use," says Charles Swango, who headed the enterprise. "There's nothing quite like neighborliness and teamwork for getting community soil and water conservation jobs done."

Another Upper Muddy Creek farmer, Hubert Willoughby, put things this way. "We actually reclaimed some land and cut down crop losses on winter-flooded areas of our farm. The channel job means that we can begin our spring work earlier. And we'll save a lot of the fertilizer and soil fertility that flood waters have been leaching away."

MANY HELPED.—With Parkersburg area business concerns, manufacturers, individuals, and agencies of local, county, State, and Federal government providing a heap of technical help, materials, equipment, and services, the Wood County, W. Va., airport has been pulled out of a severe water problem.

A \$20,000 storage, pump, and filter system was built at an actual cost of less than \$8,000. Technicians assisting the Little Kanawha Soil Conservation District made plans for the 10-foot dam that stores 1,750,000 gallons of watershed runoff. From a low, level site, a fifth of a mile below the airport, water is lifted through a 3-inch, 700-foot pipe by a 27-gallons-per-minute pump.

The job has been done with an eye to future expansion at the port, since it will supply 15 to 20 million gallons per year, enough for a field two to three times as large. It will deliver 36,000 gallons per day; the field uses 3,000. When more than 36,000 gallons is needed, all that will be required is a larger pump. The new system replaces a tank-car trucking service that was expensive and unsatisfactory. Four airport employees did all the work with a bulldozer and hand shovels. When ground to be broken for pipe lines was too hard for shoveling, they turned to air hammers.



NOVEMBER 1952

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

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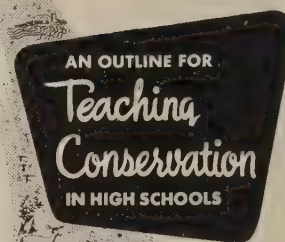
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U. S. Department of Agriculture
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By WILLIAM H. LEMMEL
Superintendent of Schools
Baltimore, Md.

The bulletin, "An Outline for Teaching Conservation in High Schools," fills an important gap in resource materials for secondary school teachers. In this publication, the Soil Conservation Service has recognized the importance of the integrated approach. The authors might have taken the view that only the physical sciences are concerned with conservation. Instead, they fortunately followed the belief that conservation is also related to the social studies, mathematics, the biological sciences, the language arts, health, the fine and industrial arts, and other fields in the secondary curriculum.

(Continued on page 89)



FRONT COVER.—Harvest scene, hybrid corn, in a contour-cultivated field on the farm of George Van Syckle, a district farmer in Harrison County, W. Va. The photographer is Anne M. Ware.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

STATE ASSOCIATION RUNS OWN NURSERY

By A. B. LINFORD



Nursery headquarters.

HERE is another tale of the resourcefulness of district supervisors. It comes from North Dakota. And it recounts a most ambitious project, which involved all of the soil conservation districts in the State, required the outlay of substantial sums of money, and resulted in the district ownership and operation of a highly successful tree nursery.

The supervisors initially had no desire to operate a nursery. But they faced a problem posed by a shortage in the supply of tree-planting materials adapted to the area and of the desired quality. Even so, they did not hurry to undertake nursery operations. Conferences with many people, including local nurserymen, preceded their action.



The nearby town of Oakes is a dependable source of labor.

North Dakota, like all Plains States, is subject to extreme variations in temperature. The range is from 50° below zero in winter to 115° F. in summer. High winds may occur at any time of year. The State has little native timber, so trees to provide protection from winds for farm buildings, livestock, and, in

many cases, cropland and growing crops must be planted. Tree-planting materials produced far east or south of North Dakota are not hardy enough for the climate and cannot be used.

Tree planting began almost with the beginning of settlement here. Congress provided early aid through the Timber Claim Act, under which a settler could acquire title to a 160-acre homestead by planting 10 acres of trees. Many fine groves resulted, but the majority of those early plantings failed to survive. Planting of trees not adapted to the area and lack of care of the trees after they were in the ground are blamed for the high rate of failure.

Later, Congress provided other aid to encourage tree planting in the Plains by passage of the Clark-McNary Act, which enabled farmers to buy trees at low cost. In 1935 the Prairie States Forestry Project was launched for the planting of field shelterbelts, the Soil Conservation Service began helping farmers establish farmstead windbreaks as well as field-protection plantings, and PMA began making conservation payments to help defray the costs of planting and care. Later, soil conservation districts began to acquire tree-planting machines for rental to cooperators.

This was the beginning of the present tree-planting movement in North Dakota. For the first time farmers received the direct help of trained technicians on the proper design and location of tree plantings, on selection of the best species according to the soil and climate, and on planting and care. In 1942 the Prairie States Forestry Project was closed down and its functions transferred to SCS.

The demand for trees has risen rapidly in recent years and has passed far beyond the sources of supply. Soil conservation district cooperators are now planting from 6 to 7 million trees annually in connection with their farm

Note.—The author is district conservationist, Soil Conservation Service, Wahpeton, N. Dak.



Sprinklers irrigate from four good wells.

and ranch conservation plans. This is about 3 million more than the number of adapted, good-quality trees available from commercial nurseries and other local sources.

Start of the districts-nursery idea came March 28, 1946, when supervisors representing the Antelope, South Richland, Sargent County, Wild Rice, and Ransom County Soil Conservation Districts held a joint meeting at Milnor. These districts are in the southeast corner of the State. At that meeting, a joint resolution was passed asking the Soil Conservation Service to aid in reopening the abandoned nursery at Oakes, which was formerly operated by the Prairie States Forestry Project but closed down when the project was discontinued.

Oakes also is in the southeastern part of the State. The nursery site near there is considered ideal for trees. Soil is sandy, water is plentiful, and nearby Oakes assures a dependable labor supply. Aided by A. E. Ferber, then superintendent of the SCS nursery at Mandan and now regional forester for SCS, the supervisors made careful estimates of the costs of reopening and operating the nursery. Glen Swanson, chairman of the board of supervisors of the South Richland Soil Conservation District, spark plug of the nursery venture and now

chairman of the nursery board, got pledges of funds from other district boards.

Nothing came of this first effort. But in 1947 the State Association of Soil Conservation Districts came through with full support at its annual meeting. Later that year, when funds were needed, the districts provided loans ranging from \$47 to \$1,000 each—a total of \$13,075. A board of managers was set up, consisting of five district supervisors, a member of the State Soil Conservation Committee, and two Soil Conservation Service employees. One of these SCS men is the manager of the Mandan nursery, and the other is a district conservationist, whose duties are to give technical guidance.

Figuratively, dirt began to fly in the spring of 1947. N. A. Devick, who ran the nursery for the Prairie States Forestry Project, was brought in as manager. The supervisors negotiated the purchase of 50 acres, which was the original nursery. The four gravel-packed irrigation wells were cleaned and put back into operation. Some seed, used machinery, and dismantled army barracks were obtained, and the nursery was back in business.

Two more loans from districts were needed—\$12,223 in 1948 and \$3,493 in 1949. Seventy acres more land, across the road from the origi-

nal nursery site, were bought in 1949. The loans were made without interest and with repayment at the discretion of the nursery board. The three loans totaling nearly \$29,000, plus income from the sale of trees, was enough to keep the nursery going the first 3 years. No loans were needed in 1950 and 1951, and this year the board plans to start repayments.

How rapidly the nursery has grown up is seen in the fact that during the 5-year period, the nursery board has bought new irrigation equipment, new electric motors for all pumping stations, new cultivation equipment, tractors, planters, and transplanters. Now being added are a warehouse and packing shed, more irrigation pipe, a new truck, and a transplanting machine.

As was to be expected, there was no production in 1947 and the nursery had to rely solely on loans to meet operating expenses. Production in 1948 amounted to 379,000 trees, which brought a net income of \$2,443.77. The second loan and this income kept things going. The 1949 production was 1,362,725 trees, which produced \$20,367.78 in net income. This, and the third and smallest loan, pushed the nursery over the hump. Production in 1950 was 1,300,270 trees and the net income, \$27,850.07—no loan needed. In 1951, a total of 3,335,525 trees was produced, bringing a net income of \$33,810.51.

Now the nursery is on a schedule of between 2 and 3 million trees annually, of which 35 percent are shrubs, 50 percent deciduous trees, and 15 percent conifers. Species include buffalo-berry, caragana, chokecherry, honeysuckle, lilac, plum, sandcherry, boxelder, Russian-olive, green ash, cottonwood, American and Chinese elm, hackberry, silver maple, white and golden willow, pine, spruce, and cedar.

The Oakes nursery now stands squarely on its own feet. Its production schedule is enough to close the gap that has existed between the demand for tree-planting materials and the supplies of adapted stock of the required quality that are available from commercial nurseries and other sources. It has reached the stage where it shows a margin over operating costs and can begin to repay the loans. Its net worth is now nearly \$100,000. Members of the present board of managers are Glen Swanson of Fairmount, chairman; Otis Tossett of Lansford; Clarence

Burns of Oriska; W. B. Taylor of Bowman; Arden Bring of Galesburg; Henry Steinberger of Donnybrook; Zane Zieman of Oakes, secretary-treasurer; and three ex officio members: L. G. Lloyd of Bismarck, E. L. Worthington of Mandan, and A. B. Linford of Wahpeton.

Success of the State Association of Soil Conservation Districts, and the individual districts within the association, shows what can be done through determined cooperative effort aroused by a strong desire to see conservation on the land. They stepped in to fill a serious breach between demand and supply. Their nursery and the thousands of acres of tree plantings for soil, moisture, and human conservation, for farmstead and field windbreaks and wildlife areas springing up all over the State are memorials to the foresight and resourcefulness of North Dakota's supervisors, working together through the districts' own association.



The "Old Pond Builder."

"SKEETER" RETIRES.—Schuyler County, N. Y., livestock will not go thirsty, even in a 3-month drought. Howard "Skeeter" Meeks, bulldozing pond builder for the Schuyler County Soil Conservation District, has helped farmers with 90 of the 109 farm ponds built there in recent years. They hold nearly 30 million gallons. "Skeeter," also known as the "Old Pond Builder," has just left his bulldozing job to become highway superintendent. Because of Meeks' reputation as a pond builder, John Lamb, who heads SCS research division in Region 1, waited several months until Schuyler County Soil Conservation District could spare him to build a series of six ponds on Cornell University lands in Arnot Forest.

23 FARMERS DEFEAT FLOODS

By A. E. McClymonds



One of the watershed's dams with flood-detention storage space. The watershed is all in grass. Notwithstanding the fact that two 5-inch rains came on successive nights, it disposed of all the runoff through the drop-inlet pipe. Thus, the water was released at an orderly rate.

THE rains that fell in Kansas in 1951 saturated the land and caused one of this country's most disastrous floods.

But the 2,500-acre watershed of the Schippel drain is almost wholly protected by conservation as a result of the cooperation of 15 bottom-land farmers and 8 upland farmers. Here, the damage was nil.

Notwithstanding the heavy rainfall, the waters stayed within the banks of the drain until they reached the overflow from the Saline River. The only part of the watershed that was damaged was that which was covered by the floodwaters themselves.

The watershed is rolling upland sandy soil. About 40 percent is cultivated. Flash floods used to strike at the rich bottom land, damage crops, and leave a deposit.

The ditch was built in 1932. It was not an adequate solution by itself, because it soon filled with silt. The county commissioners agreed to clean it only on condition that the farmers do what was necessary to prevent its filling up again.

In 1949 the cooperation got under full steam, using the facilities of the Saline County Soil Conservation District. Jay H. Payne, of SCS, made a survey and drew up a full-bodied conservation program which included a group of detention dams to hold back floodwaters temporarily and release them through drop-inlet pipes.

The cost of the program was estimated at \$10,000, or \$4 per acre. To raise half of this

amount, farmers on the upland pooled their PMA allotments; the bottom-land farmers raised the rest of the money. The Salina Chamber of Commerce sponsored a Soil Saving Day, which was a public demonstration on one farm of the application of watershed conservation.

By the close of 1950 the watershed plan was almost wholly in effect. The year 1951 began dry. But in May and June the rainfall totaled as much as usually comes in an entire year. Then came the fateful week of July 6 to 12, when water fell in torrents and put the crest on the Kansas floods.

"We got a little over 10 inches of rain in 2 nights," reported D. R. Hagadorn, who operates an upland farm owned by his son, L. T. Hagadorn. "Five inches fell the first night, a little more than that the second night."

Following the first rain, examination of the watershed and interviews with farmers showed, however, that no water flowed through the emergency spillways of the detention dams. All of the floodwater was released through the drop inlets.



Looking downstream from the same bridge. Note break in edge of ditch, and deposits of silt. The ridge extending back from the break is an emergency dike. A 2½-inch rain fell shortly after the flood, but the water was so well controlled in the watershed that the ditch was able to meet the stress.

Note.—The author is regional director, Soil Conservation Service, Lincoln, Nebr.



Looking upstream from a bridge just above the river's flood line. This little stream kept in its banks until it reached the river. Where the river flooded it, of course, there was considerable damage.

Following the second rain, there was some spillway flow for a short time at all dams except one. The latter had an all-grass drainage. Farmers pointed out that the dams are designed to discharge the floodwater in 24 hours, but that the second heavy rain followed the first by less than that interval.

Some erosion between terraces was noted, especially on fields where the conservation was more recently applied. In one field only the two upper terraces had been built. The upper part was well protected. The lower part was severely gullied; the effect of this was seen in the silt deposit at the upper end of the pond into which the field drains.

There was little evidence of silting in the other ponds, and the Schippel ditch gave further evidence that the soil was being held on the watershed. The ditch appeared almost clean all the way to the Saline River flood line. Damage to the drain where the Saline had flooded it was extensive, of course.

When a 2½-inch rain fell shortly after the floods, the runoff was so well controlled that the drain handled it readily, even though the damaged part of the drain was still unrepaired.

So, this little stream was kept in bounds. Proper conservation treatment of the watershed, plus flood-retention reservoirs designed for flood control, did a most convincing job. And there is still another side to the story.

Hagadorn said, "You bet this pays. When Lester bought this place, people thought he was foolish. It was run-down and eroded badly. Now the erosion is controlled; we are saving a lot

of the water we get, and we are building up the soil. The farm is producing well. Conservation has paid us and has helped the fellows down below."

Frank Bell, one of the bottom-land farmers, comments, "I feel I've gotten my money's worth already. This is the first time I've raised a crop in the low areas for several years. Before the detention dams and other soil conservation measures were put on the watershed, a half-inch rain after the hills were soaked would run water down on our bottom-land fields."

Clair Bell, bottom-land farmer, states, "Every farmer I have talked to in the watershed area, either on the upland or the bottom land, says he has been benefited definitely by the conservation project. Practically all of them feel that they have gotten their money back already. The only trouble is that this work should have been done 20 years ago. I am convinced that the best place to start a flood-control program is on the small watersheds through the use of detention dams, terraces, rotating crops, grass seeding, and other soil conservation practices."

AWARD THROUGH STRIP CROPPING.—When early summer rains came tearing down, and the runoff swept through his sidehill potato field, T. C. Perley, Enfield, N. H., truck-crop and dairy farmer, usually lost a strip of potatoes 12 feet wide across the entire field. It would take two men all day to reset the potatoes. He thought strip cropping would help, but he feared this practice would create operating difficulties that would offset the benefits. In 1950 he took a chance, and Donald G. Burbank, SCS technician, helped him make a complete conservation plan for his farm.

In 1951 he planted 7½ acres of potatoes in strips, alternating with grass. Although very heavy rains came early, he lost only a dozen hills. The 532-bushels-per-acre crop last fall—best he ever had—won the Grafton County championship in the 300 Bushel Club competition. Perley was surprised when no operating problems developed.

Perley is getting other benefits from his plan. He is following truck crops with winter rye. He planted 2,600 pounds and his cows gave more milk on rye than they did on any other crop. In addition, the rye crop protected his land during the winter and gave him a lot of good green manure. Under his plan he is using 700 pounds of a complete fertilizer at seeding. As a result, in 1951 he doubled his oat yield and got a better stand of grass. He is also installing riprapping, fencing-out stream banks, and doing drainage and land-clearing work.

DISTRICT PROFILE

GEORGE JEFFERY
of
SOUTH DAKOTA

Only a few years ago one of the most worthless places in Spearfish Valley was a portion of the farm now owned by George Jeffery. Two operators tried to make a go of it and failed.

What a contrast today! At the gate is a metal sign, announcing that George Jeffery and Son are cooperators with the Lawrence (S. Dak.) Soil Conservation District. It puts a meaningful label on a unit that is well-equipped, well-developed, and prosperous in its entirety. Yards, shops, and other buildings are neat and well-maintained, and the farm land is a treat to the eyes.

Jeffery came to this area in 1907. He has seen good years, and bad. He has had ups and downs, but the downs were never enough to stop his steady climb in position and reputation. Today, in partnership with his son Albert, he has made his farm a glowing example of what can be accomplished by careful planning and the conservation of soil and water.

The Jeffery farm consists of 240 acres, most of which are irrigated. The crops are varied and include barley, oats, wheat, potatoes, corn, alfalfa, and of course good grass. The permanent pastures are mainly of brome grass and legumes. But, first, a few more words about this man Jeffery himself.

YOUNGSTERS COMPETE.—Thirty \$300 college scholarships are offered to boys and girls as awards for top-rating achievement records in four National 4-H programs being conducted by 47 States this year.

The programs, number of scholarship awards in each, and donors are: Field Crops and Frozen Foods, 6 each, International Harvester; Poultry, 10, Dearborn Motors; and Soil and Water Conservation, 8, Firestone.

State winners in Field Crops and Poultry each will receive an all-expense trip to the National 4-H Club Congress in Chicago next November. Each State champion in Frozen Foods and Soil and Water Conservation will be presented a 17-jewel wrist watch; 8 sectional winners in the former program and 16 in the latter will be given a trip to the Chicago Club Congress. County winners will get medals.



George Jeffery.

George Jeffery has been interested in good sound soil and water conservation for as long as he can remember, and for as long as his neighbors can remember too. In 1940 when the Lawrence-Butte Soil Conservation District was organized he became a supervisor. When the district was divided according to the two counties involved he was retained as a supervisor on the Lawrence Soil Conservation District board and is today treasurer. He has missed only one board meeting in 12 years, and that was because it fell on July 5 and he was so busy attending the Belle Fourche Round-up that he forgot it entirely. George is a tireless worker, never too busy to attend meetings or respond to the doing of a job. He has been an active leader in local, community, and county affairs. The common attitude is: "Let's go see Jeffery about this and see what he thinks we ought to do." When George gets behind something it is bound to be a success, because he stays with it until the end. He has been active on school boards, irrigation district boards, crop improvement, war bond, and Red Cross drives, and many other public-service activities.

He prides himself on the appearance and products of his farm. In his own words, the conservation farm plan he has developed and followed with the district "has been the greatest thing ever to happen to me." He has leveled many acres of land, has constructed flumes and siphons, and relocated or elevated many of his ditches. Jeffery feels that there still is much room for improvement of irrigation practices in the district. Considerable land needs leveling,

to get efficient use of irrigation water, and gates and structures are needed to control the flow of water. George's structures are clean and efficient, and the end product marks the correctness of his manner of farming.

Jeffery habitually looks ahead to new and improved methods of irrigation and management, to new crop varieties and ways of handling his products, and to bettering his buildings and farmstead. At present he is trying new fertilizers, new types of structures, new crop varieties and mixtures, including "creeping alfalfa." His farmstead is a model. It features a well-planned windbreak, a protected garden, a beautiful lawn and flower garden, and a modern potato-storage cellar.

Jeffery is always selling conservation to his friends. He feels that the district movement has taught everyone to be more mindful of the value of topsoil, which must be taken care of if farmers are to prosper. In Lawrence County "Jeffery" and "Conservation" are synonymous.

—RUSSELL KASSON

PUPILS TEACH THEMSELVES

By ED REBMAN and WILLIAM GRIMM

PUPILS of the fifth grade at East Jordan, Mich., learn about soil conservation and soil erosion by seeing soil conservation and soil erosion.

Last year their teacher, Sadie Murphy Liskum, supervised the building of two model farms on a sand table—one with conservation measures, the other without. Stones were placed around the edges of the sand table to form the bedrock of hills. A mixture of mortar, sand, and water was poured over the rocks to simulate subsoil. The children brought in boxes of sand, clay, muck, and loam. Farms were laid out on

opposite ends of the table to represent two "forties". They were made as nearly alike as possible; each had a creek flowing into a swamp, a line fence bisected a sand hill, and across the swamp from the sand hill were rolling hills.

There the similarity ends. The names the children chose—Gloomy Gully and Happy Valley—were suggestive of what they expected to see in their project.

Gloomy Gully was laid out in square fields. The wood lot was neglected and the trees were crowded. The sand hill, regarded as useless, was left bare and subject to erosion. The swamp was thick with cedars and there was no grass for pasture. The wild pasture on the hillsides was scant, and the soil eroded with every rain. "Rain" was provided with a sprinkling can. Equal amounts of water were sprayed over each farm. About 3 quarts a week were needed to keep the growing plants supplied. The creek banks were unprotected, and washed with every rain. Because the "owner" utilized a gully as a lane for his cattle, it became wider and deeper until it finally began to encroach upon his fields. The corner of his barnyard washed down into the swamp, and there appeared to be danger of the barn's being undermined. On one field the erosion was so complete that a large area of bedrock was uncovered. The sand hill, a perfect example of gullying in miniature, was washed down into the swamp, covering the fertile soil there.

On Happy Valley the children put into practice many of the things they had read about. The sand hill was planted to pines. Of course, just sticking twigs into the sand to represent a pine planting would hold no soil, so one youngster collected shavings from all of the pencil sharpeners in the building. These, mixed with the sand, acted as a mulch of pine needles. There was still slight erosion, especially on the fire lane which they raked free of the shavings.

The wood lot on Happy Valley was thinned, showing wise management. The trees were stronger and bigger. The lot was fenced so the cattle could not destroy the growth. The creek banks were planted to pine and the cattle were fenced out.

The cedar swamp was cleared of all but a few clumps to provide shade for the cattle. Reed canarygrass was planted and provided a lush growth.

Note.—The authors are county agricultural agent, Charlevoix, Mich.; and farm planner, Boyne City, Mich., respectively.

The steepest of the hillsides on both sides of the swamp were left in permanent pasture. An area between the sand hill and the wood lot was used for legume pasture; half of it was seeded and the cattle were kept out temporarily.

The large sloping area was laid out on the contour, and oats were planted between strips of alfalfa-brome hay. The corner of the farm, where strips were too short for convenient tilling, was used for a wildlife planting of Scotch pine and multiflora rose.

To simulate sod, green sponge rubber was used. Cut in strips, it served very well to hold the water. Pieces were fitted together for pastures to cover the hillsides. To indicate scant pasture on Gloomy Gully, the rubber was snipped in tiny pieces and scattered thinly over the hillsides.

The appearance of the two homesteads was quite different. On Gloomy Gully the soil was bare, the house small, and neither the house nor barn had been painted. There were no plantings for beauty, and the entire farm looked desolate. On Happy Valley the buildings were painted, pine plantings served as a windbreak on the north and west, a hedge of shrubs separated the house and barn, and there was a flower garden.

Although the project was interesting, it would have been of little value unless definite learning resulted. English compositions were centered around conservation ideas. The English work on conservation was placed in the 4-H conservation notebooks for the county 4-H achievement exhibit.

While working out a conservation alphabet, the children learned to use reference books and a dictionary.

Contour strips, erosion, mulch, gully, and waterway were not mere words. They were actual experiences. Not only do the children recognize erosion, they know the causes, prevention, and the cure.

Most important of all, the children became conservation minded. For instance, when a chum from another room stopped by for one of Mrs. Liskum's children one afternoon she was greeted by her friend with what might be regarded as an unusual remark for a 10-year-old girl: "Did you see that terrible erosion on the hill back of the skating rink?"

By ALFRED M. HEDGE

NAVY BATTLES EROSION

ONE would hardly expect to find the United States Navy, chiefly concerned with defense of our shores, engaged in the battle against soil erosion. But the Navy is one of the largest landlords in the United States and, as such, has important erosion problems on its shore stations.

Shortly after World War II naval officials responsible for the construction, maintenance, and operation of shore installations decided to carry out a program of soil conservation on air fields, ammunition depots, and other naval facilities to reduce heavy maintenance costs resulting from erosion. They talked over their problem with officials of the Soil Conservation Service; they learned about some of the successful means of controlling erosion; they learned about soil conservation districts and how they are helping farmers with many problems similar to those on Navy lands.

In 1948 a Division of Erosion Control was set up in the Bureau of Yards and Docks. W. D. (Bud) Ellison, formerly SCS researcher, has become the chief civilian consultant on erosion control.

The Bureau of Yards and Docks recognized that the control of erosion is not much different whether on naval stations or privately owned land. They also recognized that much of the erosion damage on established stations could have been avoided if the problem had been dealt with in the lay-out and design of the station.

Arrangements have been made for the Soil Conservation Service to make detailed conservation surveys on a large number of naval stations. As the surveys are finished, local SCS technicians provide recommendations regarding proper land use and treatment for each kind of

Note.—The author is chief of project plans division, Soil Conservation Service, Washington, D. C.

land. These recommendations include probable rates of runoff, allowable velocity of flow, and other pertinent information on the design of ditches and waterways; proper angles of slope; information on soils which enables the engineer to select the best materials for each job; guides for drainage work, seeding, and fertilizing; and other pertinent facts. With this information as a guide, the Bureau of Yards and Docks in Washington has prepared a conservation report for each station surveyed by SCS. A number of SCS technicians from the Washington and regional offices have helped with this job. This report is used by design engineers who prepare construction plans and specifications. It is also a guide to the contractors building the stations and to inspectors who check the contractors' work.

The Bureau of Yards and Docks recognizes the need to consult from time to time with local SCS technicians. Naval district officers talk over their conservation problems with the governing bodies of any soil conservation districts that include Navy land within their boundaries. They have entered into cooperative agreements with districts. These agreements put the Navy land in the same relationship to a soil conservation district as any private land. After the execution of such a cooperative agreement, SCS technicians, with the approval of the district governing body, act on the request of the Navy just as they do in response to a request from any other district cooperator who needs technical guidance in the application of his plan. Where naval stations are not within organized soil conservation districts, technical consultation is arranged for by the naval district officer and the appropriate regional office of SCS.

Naval district officers appreciate the technical help they are able to get through soil conservation districts. Recently one district officer who has several stations under his command inquired what steps he could take to help interest the local people in including some Navy land within a nearby soil conservation district.

Cooperation between the Navy and soil conservation districts is not limited to technical consultation. Many of the Navy's problems involving public relationships are being solved by talks between district supervisors and Navy officers in the field. In this way the Navy believes

the public can be brought to a better understanding of Navy's objectives and ways of doing business, and this friendly cooperation enables the Navy to make minor adjustments in their plans so that many public-relation problems are avoided.

Plans have recently been made to employ a full-time conservationist on the staff of naval districts. In addition, at some of the larger individual projects, where erosion-control work is of considerable magnitude, the plans call for full-time employment of a conservationist.

Now we come to an appraisal of the work which soil conservation districts and the Soil Conservation Service are helping the Navy carry out. Here is a quotation from a letter written by G. M. Gans, Commander (CEC) USN, officer in charge of construction, to one of our State conservationists:

"In completing these investigations with the generous assistance of you and your engineers, we have been able to provide the construction bidders with valuable soil information. This tends to eliminate a contingency item in their bids, and permits economical exploitation of the depot's natural resources. Finally, it results in more favorable construction costs and considerable savings to the Government."

Rear Adm. J. F. Jelley, chief of the Bureau of Yards and Docks, has taken a personal interest in the erosion problems on Navy land. At the very beginning of this cooperative work he presided at several meetings between Navy personnel and SCS technicians in Washington, where the principles of erosion control were discussed. Recently Admiral Jelley said, in speaking of cooperative arrangements with soil conservation districts: "Under the terms of these agreements, Navy officials may call on local soil conservation authorities for guidance on these aspects of their problems which have special local application. It is expected that the advantages to be gained under the terms of these agreements will provide naval shore establishments with the best possible conservation programs for protecting engineering works against soil erosion and flood hazards, for the conservation of soil and timber resources on Navy land and for the protection of streams against pollution by silt-laden waters during heavy rainstorms."



Wyly at tractor controls.

CONSERVATION SAVES LOUISIANA FARM

By DON L. RICHARDSON

EARLY in 1949, J. G. Wyly, Jr., bought a 668-acre Mississippi River bottom farm near Tallulah, La. That year he lost \$14,000 on the place. The next year, however, he grossed \$14,210, and by 1951 the figure had climbed to \$38,324.

Wyly has worked hard to make the farm pay. Despite his first discouraging years, he kept on with expensive, but needed, drainage work. He continued to build up the structure and composition of his cropland with soil-improving crops. He stuck to his pasture-improvement plan. Land-capability mapping guided him in developing pastures. He row-cropped only those parts of the farm that could be safely and profitably cultivated.

When Wyly bought the farm, it had been cropped to corn and cotton for generations. The land was water soaked. The soil was poor; it was hard and caked, and was lacking organic matter. Preparing the land for planting was a tough job.

The year before Wyly bought the farm, a tenant was unable to pay the rent.

The only pasture on the place was a little fenced area of low-quality native grasses.

"I signed an agreement with the East Carroll-Madison Soil Conservation District to put the farm under a conservation program," Wyly recalls. "My first job was to get the place drained. They had tried draining it in the past, and ditches ran all over the place without rhyme or reason. Those ditches only made matters worse and I've had a job filling them in.

"Soil Conservation Service engineers worked out a complete conservation plan and drainage

system for me, and that first year I put in 1½ miles of ditches. I used all the PMA money I could get and \$1,500 of my own. So far I've put in more than 10 miles of ditches and I'm not through yet. I've used a dragline owned by the soil conservation district for all my ditch digging.

"The ditches empty into public works canals, which serve as an outlet for many farms; but a lot of farmers are not taking advantage of them."

Tied closely with his drainage work was the job of filling old drains, rearranging field boundaries and rows, and extensive land leveling to get the greatest use out of mechanized equipment.

The drainage work wasn't done in time to do Wyly's crops much good in 1949. At the end of the season he could count only 106 bales of cotton from 300 acres, and only 10 to 15 bushels of corn per acre from 100 acres.

In the fall of 1949 Wyly began his pasture-development program. He planted 200 acres to Singletary peas, 60 acres to tall fescue. He got good stands. He planted hairy vetch and Singletary peas to improve 50 acres of cotton land.

In 1950 Wyly turned the 50 acres of vetch and peas into the soil. "The tide began to turn," Wyly says. "Where the vetch and peas were, I made a bale of cotton per acre, and over 50 bushels of corn per acre."

In 1950 Wyly seeded White Dutch clover on some pasture land. He fertilized his fescue grass with 100 pounds of 16 percent soda nitrate an acre. "You could fairly see the grass shoot up," he says.

In 1951 Wyly finished the drainage work on his cotton land.

Note.—The author is area conservationist, Soil Conservation Service, Tallulah, La.



Sheep on Wyly farm get early April grazing in pecan orchard. Pasture is composed of hairy vetch, Singletary peas, bur and White Dutch clover.

"I had 150 acres in cotton in 1951 and harvested 214 bales of 500 pounds each," Wyly quotes from his records.

Meantime Wyly had harvested seed crops from his Singletary peas, tall fescue, and red clover to use on his own place.

Extending his use of soil-improving plants on his cropland, Wyly turned 135 acres of vetch and peas into the soil in March 1952. He has been increasing his acreage in oats while cutting down corn acreage.

Wyly turns crop residues into the soil. This practice, together with soil-improving crops, adds organic matter, makes and keeps the land soft and spongy. He uses tillage practices that do not develop plow pan, a hard layer of soil that blocks the downward movement of water and plant roots. In 1951 Wyly subtilled his cropland, and will repeat this operation every other year.

When Wyly had his pastures well along, he began stocking up with cattle, and later with sheep. By the spring of 1952 he was running 110 head of beef cattle and had 81 grown sheep and 60 lambs.

Wyly's permanent pastures are composed of Dallisgrass and tall fescue, Singletary peas and white and bur clovers. He has year-around grazing. He buys no feed for his livestock. His stock graze oats and vetch from the first of the year until about April 1. Then they are turned into the permanent pasture for the rest of the year.

Wyly believes in insect control. He sprayed and dusted his 1951 cotton crop 19 times.

Wyly learned the value of soil conservation when he was a supervisor of the East Carroll-Madison Soil Conservation District, a post he gave up when he moved from the zone he represented to take over his present farm.



Swafford and sons operate sawmill.

MANAGED WOODLAND— MORE TIMBER

By LESTER FOX

H. C. SWAFFORD loves the woods and regards his ownership of woodlands as a public trust.

A native of Tennessee, he came to Stone County, Ark., around 1920 and homesteaded a quarter section. He had only a mule, a double-bit ax, 5 bushels of corn, and 35 cents.

The quarter section was covered with trees, mostly hardwoods of no commercial value. Young Swafford cut enough pines to build a log cabin for his wife and baby. He went to work in the forest for a lumber company and began to develop a reverence for the woods.

Today Swafford owns 4,000 acres in Stone County southeast of Mountain View. All of it

is in woodland except 250 acres of improved pastures for his 50 head of beef cattle. Timber is his main crop and principal source of income, something rare among northern Arkansas farmers, though the area is thickly wooded. His five sons have an additional 1,500 acres of woodland. They work with their dad in operating the 5,500 acres as a unit.

Swafford has his own sawmill and cuts 100,000 board feet a year. He will increase his cut as his pine stand improves. He operates with three tractors, two trucks, a power hand saw, and other mechanical equipment. Economical production is his aim. He can figure quickly in his head whether he can make more by sawing a border-line tree into boards or selling it as a pole.

Swafford has always handled his woodlands with a instinctive understanding of conserva-

Note.—The author is with the division of information, Soil Conservation Service, Fort Worth, Tex.

tion principles. He has protected his forest against fire and encouraged the growth and spread of commercially valuable pine trees by keeping grazing animals out of his woodlands. He also realized that periodic thinning was a good conservation practice.

But it was not until Swafford became a co-operator with the Blue Mountain Soil Conservation District a few years ago that he acquired an understanding of the principles of managing a woodland to make it better and keep it productive permanently.

He has been given on-the-ground help by SCS foresters and other technicians. From them he has learned how to select trees for thinning and how to apply the "D plus 6" formula by which he can figure quickly how much growing space each pine tree needs. All he does is add six to the diameter of the tree and multiply

that sum by itself. "If a pine tree is 4 inches in diameter, you add 6 to that and get 10," he explains. "Then you multiply 10 by 10 and get 100. That means the 4-inch tree should have 100 square feet of growing space. With this formula I can thin my woods and take out the trees on a scientific basis. There's no hit-or-miss about it."

Swafford has also learned that to improve his timber stand and give pine trees a chance to spread he has to kill the large overtopping hardwood trees by girdling.

In 1930 Swafford cut pines from 30 acres of his original homestead to get lumber for a new home. Ten years later he cut the same 30 acres and took out 60,000 board feet.

(Continued on page 89)



H. C. Swafford talks woodland management with SCS technician H. K. Sager.

WISCONSIN BANKERS LEAD COOPERATIVE DRIVE

By HOWARD C. HASS

CENTRAL Wisconsin bankers have adopted land judging and soil conservation as their major project.

In May last year 15 teams of high-school agriculture students competed in the first land-judging contest to be held in Wisconsin. Several members of the Waupaca County Bankers Association who watched the event went away highly impressed.

To encourage the youth of their community to evaluate land, the banks in each local community decided to sponsor a team in the 1952 judging contest. They gave support which made possible certificates, awards, and a recognition dinner. A representative of each bank accompanied his team to the contest held on a farm near Wautoma.

Forty-eight agriculture students, representing sixteen high schools in central Wisconsin, participated. The soil in four different fields was examined by each student, and classified according to its color, depth, texture, permeability, and the degree of erosion that had occurred. Fields were appraised according to their inherent capability, or capacity to produce farm crops. The best adapted cropping systems and soil conservation practices were prescribed.

Central Wisconsin bankers do more than encourage a better knowledge of the land. They miss no opportunity to see that soil conservation practices are adopted on the land.

One of the leaders in this movement is Joe Hartz of Manawa, for the past 6 years executive vice president and cashier of the Farmers State Bank of his city. Shortly after starting with the Manawa bank, he made a tour of soil conservation projects with one of his bank directors and Louis Eastling, a supervisor of the Waupaca County Soil Conservation District. He was so impressed with the need of encouraging soil conservation practices on area farms that he lost little time getting started, and urged other bankers to do likewise.

Joe Hartz talked to farmers about applying conservation practices. He held soil conservation clinics every year, making use of local and nationally known talent to place the program before landowners. He used posters in the bank lobby, advertised on a postage meter and in the *Manawa Advocate*. He boosted soil conservation in the bank's annual report and purchased SOIL CONSERVATION, official magazine of the Soil Conservation Service, for district cooperators in the bank's trade area. When farmers applied for loans, he encouraged them to establish soil-building practices. When farms were appraised for real-estate loans, he recommended that SCS facilities be used, and in some cases disapproved loans until they were.

Hartz plans to stress soil conservation in his activities as executive vice president of the First National Bank in Stevens Point, where he began new duties last July 1.

Another leader in the soil conservation movement is Kenneth P. Van Epps, executive vice president and cashier of the Farmers and Merchants Bank, Weyauwega. His bank has sponsored school essay contests on soil conservation and related farm subjects for the past 5 years. He encourages farmers to join testing associations and to keep dairy-herd records. The Farmers and Merchants Association of Weyauwega, of which he is president, is sponsoring a 10- to 20-year program of establishing wild-life plantings and shelterbelts. This spring more than 12 miles of shelterbelts were established to help control wind erosion that is damaging fields west of the city. Van Epps and other associates planted 32,000 and 45,000 trees in the springs of 1951 and 1952, respectively, on eroded land near Weyauwega that is suited only for growing timber.

Harry Rawson, president of the Farmers State Bank of Waupaca and member of the executive council of the Wisconsin Bankers Association; Roy Luther, cashier of the First National Bank, Waupaca; and Bob Barney, formerly cashier of the Marion State Bank, have also done much to promote soil conservation in their

Note.—The author is district conservationist, Soil Conservation Service, Waupaca, Wis.

communities. Through farm institutes, advertising, and individual contacts they have encouraged local businessmen and farmers to become soil conservation minded.

The Waupaca County Bankers Association has been instrumental in solving equipment needs for the district supervisors. Adopting soil conservation as their major project, they entertained the county board and implement dealers at an informal dinner during their 1951 spring session. District needs were discussed, and Ben Rusy, secretary of the State Soil Conservation Committee, described how soil conservation affects an entire community. At their afternoon session the county board voted unanimously to purchase a motor-patrol grader for soil conservation work. This helped immeasurably but did not fulfill all of the needs.

In 1952 the bankers again entertained the county board and presented their problems. Here, O. K. Johnson, president of the Wisconsin Bankers Association, further encouraged their cooperation and support. Following this gathering, the county board provided an additional two graders for soil conservation projects, which should adequately serve the immediate needs of the district for such equipment.

This sort of cooperation between bankers, farmers, agricultural teachers, students, district supervisors, and SCS personnel is bringing results to central Wisconsin in education and conservation on the land.

MORE TIMBER

(Continued from page 87)

"I didn't cut close," Swafford says. "I could go back in that same 30 acres now and cut out 25,000 feet and leave 75,000 feet. That's a lot more than I had there 10 years earlier, when I had to take every pine 4 inches in diameter or bigger over the whole 30 acres to get enough lumber for the house—less than 2,000 feet. And about the only pines in the whole quarter section originally were in those 30 acres. That's proof of how you can increase pine growth with a little care and management. I estimate I'm growing 200 board feet per acre per year on that 30 acres, and production will increase to 300 feet. Our whole 5,500 acres are improving in the same way, though it's not all producing at the rate of the 30 acres yet."

As part of his conservation plan, Swafford has divided his woodland into seven tracts of about equal size and plans to cut each tract every 7 years. His schedule has been hindered for the time, however, by ice which did an estimated \$10,000 damage to his pine trees in the winter of 1951-52. The ice bent and broke hundreds of trees. Swafford has been busy removing the damaged pines as salvage.

For the last 20 years Swafford has been putting all his spare cash into the purchase of additional woodlands. He is still in the market, and is interested in a 40-acre tract that might appear worthless to most persons.

"Many farmers cut pines when they are too small and burn the woods over every year," Swafford says. "They think burning kills the ticks and improves the grazing, but all it does is raise a big smoke."

Swafford's pines have increased tremendously with the good care he has given them. Without boasting he tells you: "I have more pine timber on my land than there is between here and Heber Springs."

That is 27 miles.

OUTLINE FOR TEACHING

(Continued from page 74)

Each chapter is divided into three sections. First, there is a brief statement indicating the relationships between the subject and the field of conservation; then there is a brief outline of objectives; and, finally, there are suggested activities and topics for study and discussion.

The pamphlet should be helpful to supervisors, administrators, and curriculum directors who need an over-all point of view and a brief guide to the problem of conservation, especially as applied to the soil. The bulletin will also be useful to teachers in planning units of work, projects, and trips.

As the authors make clear, it is not the purpose of this bulletin to offer a definitive treatment of the problems of conservation of natural resources. Other publications will need to supplement this very brief treatment of the topic. Moreover, each teacher will need to make adaptations to fit local needs. Used in this way, the outline should do much to help our young people avoid the mistakes their elders made in their use of America's natural resources.

THE CITIZEN'S PART IN CONSERVATION

By JOHN H. BAKER

AMERICANS are tremendously interested in conservation. State legislators have said that they receive more mail about conservation legislation than about all other subjects combined. Laws have been put on the statute books as a result of citizen participation in conservation planning. The result is a more advanced body of conservation legislation in America than anywhere else in the world.

The greatest progress made in conservation in our generation has been growing recognition of its basic relation to human welfare—the broadening of horizons and the scope of operations and goals of the organizations working in the conservation vineyard. No longer, as a rule, can we afford to compartmentalize our thinking or action. We cannot expect thus to win, as a people, in the battle of life on this planet. No longer can we attain our ends by organizing for special purposes that represent a preferential interest conflicting with other preferential interests in the same general field.

The National Audubon Society, for example, endeavors to make people aware of the steady stream of life around them; of its beauty, richness, and complexity; and, above all, aware that they are part of this exciting pageant of events; that human life is affected in all sorts of ways by every plant that forms a seed, by every prairie dog that makes a burrow, by every dragonfly that emerges from its nymphal case; that man is, in fact, part and parcel of the biological picture, and can no more escape therefrom than from birth or death.

It is encouraging that we are getting down to fundamentals. Soil and water conservation is

basic if our over-all resource picture is to improve. For too long, soil and water were orphans of the storm, and the situation is far from remedied yet. Ecology, though still dimly understood by the average layman, is slowly gaining public recognition and acceptance. The cries of “shoot the predators” and “build more game farms” are heard less often. It is finally becoming understood that game will not prosper unless it has suitable habitat, but will then prosper without any predator control other than that of man. Enlightened groups are now working to improve wildlife habitat in every possible way; they work with soil conservation districts and other agencies to prevent soil erosion and abuse, because they know that wildlife needs healthy land as much as people do.

Most persons interested in natural resource conservation participate in the programs of the thousands of voluntary organizations, on national, regional, State, county, and local levels, that have been established to advance conservation objectives. Some have goals that are diametrically opposed to those of other groups that also regard themselves as conservation agencies. This is merely a reflection of the many differences of opinion about conservation matters. The disparity in viewpoint between, let us say, the Baptist preacher who espouses fundamentalism and the Unitarian minister's “realistic” approach is no greater than is to be found in the conservation field. Despite their varying philosophies, often brought into sharp focus at legislative hearings, our conservation organizations do team up with reasonable effectiveness.

A listing of some of the national conservation organizations will give an idea of the variety of purposes they serve: American Forestry Association, Washington, D. C.; Conservation Foundation, New York City; Friends of the Land, Columbus, Ohio; Izaak Walton League of America, Chicago, Ill.; National Audubon So-

Note.—John H. Baker, New York City, is president of the National Audubon Society, and is chairman of the Committee on Conservation advisory to the Secretary of the Interior. He has been a breeder of Aberdeen-Angus beef cattle on a farm in Dutchess County, N. Y., since 1930. He is editor of “Audubon Guide to Attracting Birds” (1941). This article is taken, by permission, from *The Annals of the American Academy of Political and Social Science*, May 1952.

ciety, New York City; National Parks Association, Washington, D. C.; National Wildlife Federation, Washington, D. C.; Wilderness Society, Washington, D. C.; Wildlife Management Institute, Washington, D. C.

There are a number of others, many with specialized interests, such as the Sierra Club, the Wild Flower Preservation Society, Ducks Unlimited, Sport Fishing Institute, and the conservation committees of the Garden Club of America, and the National Council of State Garden Clubs, Inc.

Each national conservation organization concentrates on certain major objectives, though its scope of interest and influence may cover the entire conservation front. This is as it should be. Most executives of national conservation organizations make it their business to keep in close touch with key personnel of the governmental agencies charged with conservation work. Therefore the views of the organizations are usually well known to the departments and bureaus concerned. Much the same is true of Congress. Those legislators who are particularly concerned with conservation problems are kept informed as to the thinking of the conservation groups. Congressional committees frequently hold public hearings on controversial matters, and these are well attended by organizational representatives.

Somewhat the same situation exists on State and local levels. Most governors or State conservation departments have advisory committees that keep them abreast of grass-roots opinion. It is unfortunate that some of these committees are representative of special rather than public interest in the field. In some cases they reflect solely the point of view of those

whose main objective is harvesting more game now, not later.

Occasionally someone suggests that perhaps greater effectiveness could be achieved by coordinating or merging the major national conservation groups into one superorganization. This is advocated on the ground of "efficiency." With human nature operating freely in a democracy, the chances that such a plan would produce desirable results are practically nil. There would be great dissension over emphasis, both in policy and in application of funds. A single agency probably could not command the financial support that is given to the combination of present voluntary organizations. At present there is a good spirit of give-and-take among the various groups. Any two of them may be in complete disagreement one month and work hand in hand on another issue the next month.

It has been estimated that some 10 million Americans pay dues to conservation organizations. It is through membership in, and financial support of, the national conservation organizations and their local branches, chapters, or affiliates that John Q. Public has the best opportunity to further conservation. In the local groups he can have the satisfaction of personal participation in specific projects, and pride in personal accomplishment.

The individual may find himself on a committee of his local organization to survey the need of conservation in his community and its environs. If so, he is likely to sustain a series of shocks. He may discover that most of the timber products used in his area were not grown there, nor in his State, nor even in his Nation. He may find deep scars on the land and



observe that only a fraction of the farmers are using soil conservation methods. If he wonders at the paucity of wildlife, his questions will be answered by the drained marshes and barren fence rows that are symbols of modern farming. In our rush to put every acre to use in producing even greater farm surpluses, we have made it hard going for wildlife. The old wooden and stone fences supported vines and shrubs that offered abundant food and cover. The pot holes bred ducks, muskrats, and a variety of other wildlife. The modern farm may produce a few bushels more of potatoes or corn, but one can hardly believe that it is a better place to live than the farm of yesteryear.

Because State lines are, after all, artificial political boundaries, some organizations are regional in nature. With the development of what is called the "watershed approach" to conservation planning, it seems logical that regional organizations will increase. A good example is the Brandywine Valley Association.

Some years ago a group of civic-minded men and women took a long, hard look at the 330-square-mile area where they lived. They decided that the Brandywine Valley in Pennsylvania and Delaware, where reside some 200,000 people, was not receiving the sort of treatment that befits a good home. Because they had the common sense to realize that their health and prosperity depended to a considerable extent on the natural resources of their region, they formed the Brandywine Valley Association. According to their own statement, it was organized to provide a common meeting ground on which ideas and information could be exchanged and progress measured. The association's program encourages and aids the people of the Brandywine Valley to reduce soil erosion and silting, lessen flooding and drought damage, decrease stream pollution, improve and protect existing woodland, reforest marginal lands, and preserve wildlife and natural beauty.

The work of the Brandywine Valley Association is largely educational, as is that of most conservation organizations. Members of its full-time staff attend meetings and demonstrations throughout the valley and succeed in arousing interest in conservation problems that are so close at hand that few people see them.

It did not take the association long to discover that no matter how valuable improved procedures are, they have to be sold to the landowners or industries involved; so it is helping to acquaint the residents of the valley with the ways in which they can utilize the services of conservation agencies. The organization has steered clear of partisan affiliations of any kind. It has enlisted as backers many of the most influential citizens of the Brandywine Valley. Certainly no one can deny that the valley is a better place today because of active citizen participation in conservation planning.

Whenever conservationists meet at conventions, lamentations are heard on all sides about the failure of our school systems to teach conservation effectively. It is alleged that most of our problems today result from this shortcoming, and that the conservation future will not be very rosy unless remedial action is taken. Back in 1911 the National Audubon Society decided to do something about this matter. Illustrated material for children and program aids for their teachers were made available, and over 9 million American and Canadian children will have enrolled as members of Audubon Junior Clubs by April 1952. The great majority of these are alive today, and it is reasonable to deduce that their combined thinking has had, and is having, measurable beneficial effect on governmental policies and legislation.

In 1936 the society launched its summer camp program for adults, especially designed to be of practical aid to school personnel, youth leaders and camp counselors, recreation and playground personnel, conservation chairmen of societies and clubs, and others with a hobby or professional interest in nature. These camps are more than natural history schools. They are concerned with more than simply stimulating hobbies or professions. They aim to develop majority public opinion favoring intelligent treatment and wise use of our natural resources, so that there may be constructive legislative results, with popular enforcement.

The society is working on the leverage principle, imparting a knowledge of successful teaching techniques to teachers and other youth leaders, each of whom may be expected to

reach an average of 30 youngsters during the ensuing year. Some 600 persons graduate each year from the 3 camps now operating in Maine, Connecticut, and California. Picture, then, the influence to be attained by a dozen such camps geographically distributed throughout the continent, graduating annually some 3,000 youth leaders possessing opportunity to reach, each school, troop, or club year, some 90,000 young people. Bear in mind that the camps cater to new students each summer, so the effect tends to snowball rapidly.

If, in a 2-week session, the society conveys to each student comprehension of the interrelationships of soil, water, plants, and animals and an awareness of their impact on human welfare; imparts to them knowledge of successful teaching and leadership techniques, not by listening, watching, or reading about them, but by trying them out in the field under guidance; develops in them a wonderful spirit and the feeling that they have never had a better time in their lives; causes them to wonder how we can give them so much for so little and send them home with new zest in life and a will to further conservation in their own communities—if these things are accomplished, we have gained our principal objectives.

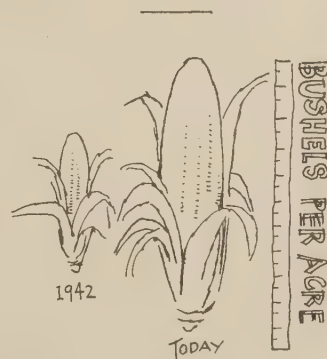
Upon returning to Minneapolis from the Audubon Camp of Connecticut, several school teachers decided that direct action was advisable. With official blessing, they formed a conservation committee in the Minneapolis public schools. Teachers from different grade levels, principals, and supervisors are on the committee. They meet regularly to discuss ways of integrating conservation into the curriculum and to exchange their own experiences and ideas. It augurs well for the future.

It is not possible to cover with thoroughness in this article all the ways in which citizens, through the organizations they have formed, take part in conservation activities. Nevertheless, public opinion continues to lag many years behind the findings of science in conservation work. It has been said with some truth that our greatest problem now is not so much to conduct more research to find more facts, as to do the educational job necessary to acquaint the public with the known facts, so that the policies of

governmental conservation agencies may be up to date.

Virtually every conservation organization is carrying on work that is made possible by the interest and support of individual citizens banded together to accomplish certain purposes. Only a handful of these groups are endowed, and those inadequately. The others are operating on shoestrings. The few organizations in the conservation field that are sometimes inaccurately described as "wealthy" have tiny endowments when compared with even small-sized colleges or museums. The largest present endowment of a conservation organization is less than 3 million dollars.

Despite the limitations under which conservation organizations work, a tremendous amount of progress has been made. Conservation has evolved from a philosophy propounded by people who were regarded as cranks into an accepted doctrine that now finds wide public support. No realist can afford to do much boasting about what has been accomplished, because so much remains to be done. We can all rejoice, however, in the fact that large numbers of citizens are now participating in conservation work. We shall doubtless see the day when conservation will be the way of life in America.



TRIPLED CORN YIELD.—On a 25-acre field which produced 35 to 40 bushels of corn per acre less than 10 years ago, H. George Thompson, of Great Mills, Md., got more than 100 bushels per acre last year. His small-grain yields have gone up similarly. Thompson attributes most of the increased production to sound conservation practices established in cooperation with the St. Marys Soil Conservation District. Gullies, so old and deep that big trees had grown in them, are healed and under cover. None of his topsoil is running into the St. Marys River any more. Diversion and strips have ended his erosion problem.

FFA OPERATES FARM

By JOHN G. WILSON

THANKS to the friendly interest of a Newton, Iowa, automobile dealer, the Newton FFA class is now taking an active part in the planning and operation of an 86-acre farm. The dealer, T. H. Ragsdale, believes in soil conservation—and boys. The lease worked out between Ragsdale and the FFA chapter is on a 50-50 crop share basis with other provisions covering all operations and expenditures.

This is not the chapter's first venture in conservation farming. The Newton FFA class is a pioneer in this activity. It operated a 40-acre tract for several years and in 1950 took over an additional 20 acres. Ragsdale stepped in when these tracts were no longer available. The hard-working FFA class had already won a year's use of a tractor with plow, blade, and scoop in a State contest sponsored by a Des Moines implement company. Through the cash returns from their farm operations and a donation from the Newton Chamber of Commerce, the chapter bought the tractor and equipment and also have added a disk, planter, fertilizer spreader, and sprayer. A rotary hoe was donated by a local manufacturing company, and other equipment has been loaned by Newton implement dealers.

A complete conservation plan for the Ragsdale farm has been developed between the owner, the chapter, and the Jasper County Soil Conservation District. The plan was developed after the class spent several periods walking over the farm and studying the capability map made up by the Soil Conservation Service. As farm planner, the writer discussed various phases of the program with the group, and since then has aided by demonstrating how to run contour lines and carry out other practices in applying the plan.

The land-use map shows about 20 acres of cropland, 10 acres of permanent hay, and the

remainder in pasture, with the exception of a 2-acre wildlife area, which consists of a pond surrounded by grass and wildlife plantings.

The cropland, being Class II land according to capabilities, has been set up with a 4-year rotation of corn, corn, oats, and meadow, and supported by necessary conservation practices—grassed waterways and contouring. All the cropland is in corn this year; the 5-year-old stand of alfalfa has been completely killed out. A terrace will be placed at the lower edge of the fields to protect the area below from excessive runoff. Later a multiflora-rose fence will be planted between cropland, pasture, and hay land. This will provide cover for wildlife. Soil samples for the entire farm have been taken and sent to the State College at Ames for tests. Lime and fertilizer will be applied according to recommendations.

A definite program of improvement has been worked out for the pasture area. First it was necessary to fill several deep gullies that had cut the field into small patches. This was done by a large bulldozer employed by the owner. The final shaping and seeding was done by the chapter. Approximately 10 acres of the pasture is being broken on the contour this year and will be planted to corn. Next year this plot will be seeded back for improved high-protein roughage and another 10 acres broken out and handled the same way. This will be continued until the entire acreage is improved. About half the pasture will be seeded with birdsfoot trefoil and orchardgrass and the rest to an alfalfa-bromegrass mixture.

The permanent hay land has also been seeded to alfalfa-bromegrass and will be reseeded as the stand deteriorates.

Another management problem is noxious weed control. A large patch of Canadian thistles will be sprayed with 2-4-D and then smothered by a heavy stand of permanent hay in an attempt to control it.

A deep gully head encroaching on the farm from the southwest presented another problem. To control this gully a tube and riser type mechanical control structure is being considered. If built, it is so designed as to create a lake of about 3 acres. This would then be developed as a recreational area.

Besides all the experiences gained by working

Note.—The author is farm planner, Soil Conservation Service, Newton, Iowa.

with the above-mentioned problems, the FFA class gets the experience of operating and adjusting equipment; mixing, treating, and inoculating seed; mixing sprays; making choice of seed varieties; methods and time to till land; harvesting and selling crops; all these, plus the responsibility of getting the job done by working together as a team. There is the further angle of landlord-tenant relationship that will furnish priceless experience for the boys when they become farm operators themselves.

With nearly 30 acres of corn and 10 acres of oats for crops this year, the boys will be kept busy. And, with a good crop, they should net a fair return in cash.

Dale Purcell, their instructor; and Emeron Dettman, his assistant, are proud of their students' enthusiasm and determination. The instructors themselves have also worked on the project and both say it is worth all their efforts.

Ragsdale, too, is anxious to make the project a success. And from a certain glow on his face when the boys affectionately call him "Rags," I am sure that he will.

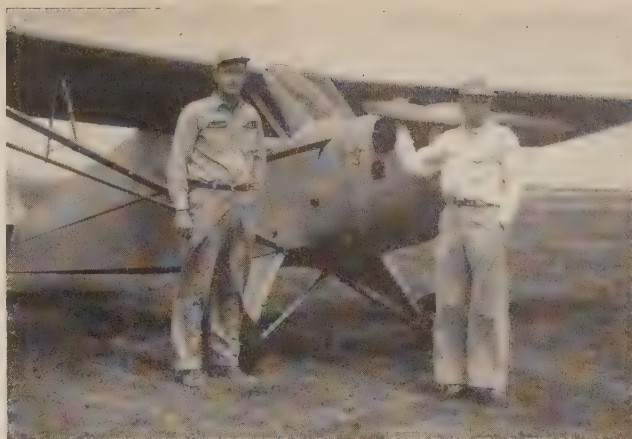
MULCH SPED GROWTH.—When they set out a new orchard 2 years ago, C. E. Gowan & Son, in the Rockingham County (N. H.) Soil Conservation District, mulched one-half of it and cropped the other half. Growth of the mulched trees now exceeds growth of those in the cropped area by at least 50 percent.

CONSERVATION IN COLOR.—Because of the enthusiasm of an SCS conservation aid and a county PMA supervisor, the people of Elk County in southeastern Kansas have their own colored motion picture, telling the story of soil and water conservation—needs and accomplishments—in their own area.

The film takes 24 minutes to show and was very popular from the start. Although completed only late last year, it has been shown to hundreds at meetings in Elk County. It has also been shown in nearby counties, and there are many requests for other showings.

This picture is the product of George G. Gorman of the Soil Conservation Service staff at the Elk County Soil Conservation District, and Kenneth Parker of PMA. The men are stationed at Howard, are close companions, work together a great deal, and engage jointly in other activities. Their latest is joint ownership of an airplane.

They conceived the motion picture and made an outline. Then, during a 3-month period, they took the



George Gorman of SCS and Kenneth Parker of PMA with their airplane.

various scenes. This was done on their own time—Saturdays and Sundays—except for a total of 8 hours of working time. Scenes were "shot" in various sections of the county as the men saw the opportunities. Later, Gorman and Parker cut, edited, and reassembled the film in the sequence as originally planned. They bought titles for the beginning and end in order to dress up the picture.

The opening scene shows a plane taking off and the last shows it landing. A third of the pictures were taken from the air.

Here are the scenes shown: Erosion and poor terrace outlets as seen from the air and the ground; both native- and tame-grass waterways, with close-ups of the kinds of grasses; aerial views of all terraced and contoured farms, with ground views showing dimensions of a properly built terrace and scenes of terrace building; aerial views of four ponds, with ground scenes showing properly riprapped dams and fenced spillways, showing comparison of conditions within fenced spillway areas and outside and showing how a cut spillway is adaptable to certain sites, and heavy equipment building a dam; and scenes at the SCS nursery at Manhattan, Kans., showing tame and native grasses.

First showing of the picture was at the annual meeting of the soil conservation district, with 255 present. Gorman addressed the group, stressing the importance of a complete conservation plan established on the basis of land capabilities and needs of the land.

Gorman and Parker spent about \$70 making this picture. Of this, \$40 was for plane rental and \$30 for film, reels, and supplies. The use of their own plane, which they bought before they concluded the picture, is not included. They had no thought of repayment, but after the first showing the soil conservation district repaid Gorman and the PMA repaid Parker.

With this project out of the way, it will be interesting to watch what Gorman and Parker will start next. Soil conservation is their paramount interest. It has been said that a real soil and water conservationist is also something of a missionary. These men qualify.

—ROY M. DAVIS.

HIGH LIGHTS of FISCAL 1952

By R. W. ROGERS

FISCAL year 1952 set an all-time record of Soil Conservation Service accomplishment in districts when 2,404 districts were assisted, 88 more than the previous year; over 37 million acres were surveyed, an increase of nearly 7 percent; 86,300 basic conservation plans were prepared for nearly 23 million acres, a decrease of 37 percent; and 165,800 plans were started in the initial and advanced stages. This was the first full year of progressive planning procedures and more farmers and ranchers became cooperators than ever before in 1 year.

As of June 30, 1952, there were about 1,120,000 active district cooperators whose land comprised over 322 million acres, or more than a fourth of the agricultural land in the United States. Over 410 million acres had been surveyed in sufficient detail for farm and ranch planning. In many areas the initial planning stages are moving ahead rapidly before surveys are available.

Application of soil and water conservation practices during the year on farms and ranches of district cooperators increased about 7 percent over the previous year, even though slightly less technical assistance was available. There were increases in cover cropping, 17.3 percent; seeding range and pasture, 26.6 percent; pond construction, 62.7 percent; farm drainage, 12.0 percent; and irrigation land preparation, plus 6.0 percent. Other practices showed slight decreases in the amounts newly applied in the 1 year, with the largest reduction of minus 14.3 percent for terraces constructed.

Group-enterprise plans for drainage, irrigation, water control, and other types of jobs were developed to benefit over 15,000 farms and nearly 1 million acres. The estimated construction cost for these jobs amounted to more than 5 million dollars, which is to be paid by the farmers and ranchers benefited by such work.

Flood-control operations continued in 11 authorized watershed areas where 28 sub-watershed work plans were prepared for nearly 1,400,000 acres. Works of improvements installed on these projects for flood prevention were somewhat less than the year before because of reductions in staff available for this kind of work.

Emergency farm-land restoration and stream-channel improvement work in the lower Missouri River Basin and along other flooded streams was completed in substantial quantities, mainly by contracts prepared under supervision of SCS technicians. Funds are available for the continuation of such emergency work next year.

During fiscal year 1952, Service technicians assisted about 500,000 ACP participants with permanent-type practices. Of this number about 220,000 were already district cooperators; 70,000 became cooperators during the year, and 210,000 were not district cooperators. Considerable work was done in determining needs for practices, site selection and lay-out, supervision or assistance during installation, and checking or reporting of performance. This work covered parts of the 1951 and 1952 ACP program years.

Perhaps it is too early to become optimistic, but it now appears that Service technicians will help more than a million farmers and ranchers apply needed soil and water conservation practices in 1953. District governing bodies are moving ahead with their local programs as more and more cooperators join their rolls. Cooperation of County PMA Committees and Service technicians has been strengthened in nearly all States. And the interest of landowners and operators to go ahead with their part of the job, leads toward more and better conservation work done faster.

SOURCE OF INFORMATION.—The editor of the *Dane County (Wis.) News* received a gift subscription to *SOIL CONSERVATION Magazine* from the supervisors of the local soil conservation district. He uses the articles in his paper.

Note.—The author is chief records and reports division, Soil Conservation Service, Washington, D. C.



December 1952

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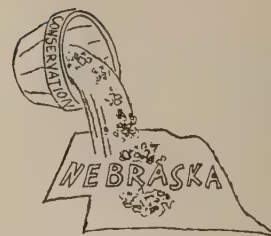
SOIL CONSERVATION •

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ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
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WELLINGTON BRINK
Editor

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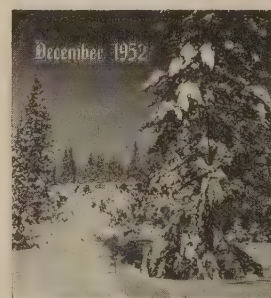
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MORE IRRIGATED LAND FOR NEBRASKA.—Through conservation plans developed by district cooperators and the SCS, 18,400 acres were added to Nebraska's irrigated land during the past fiscal year. In addition, the SCS technicians helped with the revision of existing irrigation systems on over 20,140 acres of other land.

This work required the installation of 1,291 structures to control irrigation water, 458 miles of supply and field ditches, 20 irrigation dams, 150 irrigation wells, and 63 surface pumps, plus the leveling of 15,100 acres of land.

SCS technicians supplied technical-design and lay-out services, farmers and ranchers did the construction work, or hired it done, PMA helped finance the job.

To date, the total number of acres of new land brought under irrigation in Nebraska is over 222,600.



FRONT COVER.—A snow scene which symbolizes nature's season of rest. Where there are conservation practices on the land, much of winter's moisture will be caught and held in the ground when the thawing comes. The runoff will be gradual. Crops will benefit both here and on the farms lower down.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



This scene is on highway near Holly Beach. About 600 head of cattle make the spring trek.

MODERN CATTLE DRIVE

By ROBERT E. WILLIAMS

EVERY cattleman dreams of grass that's green the year around. The dream's a reality for the Richard brothers, Mark and Rudolph, who run about 600 cows on native range in the Gulf Coast Soil Conservation District of southwest Louisiana.

Their secret of year-round green-grass grazing is the use of marsh range half the year and cut-over longleaf-pine range the other half. This system involves a 65-mile overland cattle drive twice a year.

The Richard brothers use the marsh range along the Gulf of Mexico in Cameron Parish from mid-October to mid-April. Then they trail their herd 65 miles north to the cut-over pine range in Calcasieu Parish for grazing from mid-April to mid-October.



Mark Richard and his brother Rudolph take time out during drive.

Best in the cool season, marsh range grasses start their growth early in the fall and don't get tough until late the following spring. They produce seed from early summer to fall.

The Richard brothers lease their marsh range from H. J. L. Stark, veteran marsh cattleman who has known the Richards so long they speak of him as their "second daddy." They figure on 4 acres of marsh range per cow for the 6 months of grazing. They keep the number of cattle adjusted to the amount of forage on the range. Proper stocking rates, seasonal use of the range, and deferred grazing are part of the conservation program they are carrying out as members of the Gulf Coast Soil Conservation District.

Grasses on the cut-over woodland range begin

Note.—The author is range conservationist, Soil Conservation Service, Crowley, La.



Richard herd crosses intracoastal canal on way to cut-over pine range.

their growth in March. They produce seed in the late summer. Their greatest forage value is reached in April and May. After that their value declines.

By taking advantage of the seasonal benefits of the marshland and woodland ranges, the Richards have established a grazing set-up that would be mighty attractive to many western ranchers.

Mark Richard lives in Cameron and takes care of the herd when it is on the winter marsh range. He is a supervisor of the Gulf Coast Soil Conservation District. His brother Rudolph lives at DeQuincy, the summer headquarters. He is in charge of the cattle when they are on the cut-over woodland range.

At the summer ranch 400 acres of cut-over land have been improved by fertilizing the soil, and seeding clovers, Dallisgrass, and lespedeza. The improved pastures are used for springing heifers and cows needing extra attention. Most of the herd gets its forage from the native blue-stem range. Eight acres of this type of range are needed to carry a cow for the season.

The Richard brothers round up their cattle each spring and fall for the 65-mile drive. Usually 1 day is required for the round-up, 4 days for the drive, and 1 day to separate the herd for different grazing areas. High light of the drive is the swim across the intracoastal canal.

"We don't truck the cattle, because the drive is easier on them," Mark Richard says. "Loading and unloading cattle is harder on them than

the drive. Our calves come from fall till spring and trucking would be too hard on the cows."

Grazing areas have been set up where the cattle spend each night and for a 2-hour midday stop. Two stops are made on open-range areas; the others are made on private pastures of local stockmen. The herd is moved slowly and even small calves make the trip in good shape. No extra feed is used on the drive other than the grazing at the rest stops.

Main sources of forage in the marsh range are marsh hay and gulf cordgrass. Several bulrushes, mainly olney and California, and the common reed are also present.

Resting the fenced marsh range in the summer gives the good forage plants a chance to grow, make seed, and strengthen their root systems. The grasses are kept in such good condition that the Richards give their cattle no extra winter feeding.

Another advantage of moving the cattle to higher ground in summer is that it gets them away from the marshland mosquitoes.

Early spring rest for the woodland range helps the better grasses—the big and pinehill

(Continued on page 112)

This young individualist refused to swim and had to be taken across canal by ferry.



MANY people think of the Izaak Walton League as an organization whose purpose is to provide better fishing for its members. It is true that league members, who call themselves "Ikes," are interested in fishing, even though many of them never fish. Some are fishermen. Some are hunters. Some are outdoor lovers who enjoy camping, hiking, and boating. But all of them are conservationists. They recognize that our Nation's primary resources are its soils, its water, its forests, its minerals, and its wildlife. And the league has appointed itself the defender of these resources.

If a stream is well populated with desirable fish, the Ikes realize that soil is not washing into it, that it is not polluted, and that it is generally a valuable asset to the community,



ONE SMALL WATERSHED AND THE IZAAK WALTON LEAGUE

By HUBERT B. AVERETTE and JAMES L. LITTLETON

the State, and the Nation. On the other hand, if a stream is muddy and devoid of all but coarse fishes, the league members know that something is wrong. It may be polluted by sewage, industrial wastes, or eroded soils. Frequently, such streams are contaminated by all three. To improve conditions, soil erosion must be stopped and other pollution minimized by water-treatment plants.

Little River, which forms the boundary between Montgomery County, Va., on the north and Pulaski and Floyd Counties on the south, is a prime example of a stream polluted by eroded soil. Year after year, the farms in the Little River watershed have become poorer and poorer because their topsoil has washed into the river. In 1946, the Radford Chapter of the Izaak Walton League of America asked the Skyline Soil Conservation District and the State Highway Department to do everything possible to keep soil from washing out of crop fields and

off road banks, and silting into Little River. This stream, they felt, could furnish some of the best bass fishing in southwestern Virginia, if it were cleared up and maintained so that fish could have plenty of deep, clear water, good places to spawn, and more food.

About 5 years ago, SCS began working with farmers on the soil-erosion problem. No miracle has been accomplished, but a good start has been made toward cleaning up Little River, and a number of farmers are cooperating with the Skyline Soil Conservation District. The accompanying map shows the number and location of farms cooperating with the district program.

In August 1950, the Christiansburg Chapter of the Izaak Walton League was organized. It adopted a resolution to work with all agencies to help clean up Little River and to encourage the reforestation of areas too steep and too rough to top-dress for pasture.

The following summary outlines the status of the watershed in 1952:

- (a) There are approximately 42,000 acres in the Little River watershed.

Note.—The authors are soil conservation aid and soil conservationist, respectively, Soil Conservation Service, Christiansburg, Va.

- (b) Approximately 10,000 acres are woodland.
- (c) Several thousand more acres that are too steep and rough to lime and fertilize should be planted to trees.
- (d) 81 farmers are under soil and water conservation plans.
- (e) In these 81 farms are 10,918 acres.
- (f) About 900 acres on the cooperating farms have been strip-cropped for crop rotation or pasture.
- (g) It is planned to strip an additional 100 acres in the fall of 1952.
- (h) 5,912 acres are in permanent pasture.
- (i) 1,120 acres are already in, or are being put in, permanent hay as soon as possible.
- (j) About 1,720 acres are in woodland.
- (k) This summary accounts for 9,752 acres on the 81 farms, which leaves 1,166 acres in idle land, home sites, cropland not suited for strip cropping, and bottom land.

Several farmers in this section are setting out bicolor lespedeza this spring in order to improve the food supply and cover for quail. On most farms there are some strips or patches of land which should be retired from cultivation to conserve soil and water. In many instances, the best treatment of such areas is the planting of vegetation to provide food and cover for wildlife, as well as to prevent the washing of soil and wasting of water. Fifteen thousand bicolor plants and twelve thousand multiflora-rose plants are now established.

Quite a number of these farmers are getting their pastures in good shape and increasing their hay crops. Thus, they are able to cut down on the amount of corn grown and get land that is unsuitable for clean cultivation back into pasture or permanent hay. Some farmers are interested in grassland farming and are working toward that goal. They are killing two birds with one stone. They are improving their farms by holding the soil and water where they will do the most good; and they are building up the fertility of their soil and doing away with most of the erosion problems. By achieving these ends they are automatically doing their part to clear and clean up Little River. It is fairly obvious that cleaning up Little River benefits the farmers in that watershed more than anyone else.

The work already done is only a start. There are many more than 81 farms in the Little River watershed. It is hoped that many of them will soon adopt soil and water conservation practices. Cooperation with the district offers the farm owners a golden opportunity. The State Highway Department has promised to do all in its power to control silting from road banks and drains, now important sources of pollution. The Skyline Soil Conservation District is anxious to assist as many farmers as possible. As Little River is restored to its one-time position as one of the most beautiful streams in Virginia, sportsmen and farmers alike will share the profit and pleasure that result from good soil and water conservation.

DISTRICT PROFILE

ERIC REPPUN
OF
MOLOKAI

Eric Reppun is an outspoken man, and on two subjects he is especially outspoken: communism and soil conservation. He is fully acquainted with both. Eric is not afraid to work against communism, and for soil conservation.

The first cooperator with the Molokai Soil Conservation District, T. H., was Eric Reppun. The first pineapple field laid out for Eric was a problem for both Eric and the engineer assigned to the district. Conditions were new to the latter, and Eric himself was hesitant about some of the fancy curves. The machinery for the laying of paper and subsequent spraying and harvesting is easily handled on straight lines; but on the steep hills with the curves, it takes able operators.

On the first 180 acres Eric went with the engineer almost all the way. He wishes now he hadn't been so hesitant. He remembers that many years ago a huge gully was formed in this field after a torrential kona storm; the field afterward remained idle. The gully was filled and further gullying was prevented, as he and I found out after the first heavy storms. The field amply paid for all the work and produced a record crop of luscious pineapples.

For Eric the jump from pineapples to communism is short. Eric was born in Russia just



before the present regime took over. His father was a very competent physician in the Czar's army. When the Bolsheviks finally caught Dr. Reppun they spared his life because of the shortage of physicians, and because of a typhus epidemic that was raging through the civilians and troops of both sides.

Dr. Reppun had his own hospital in the Ural Mountain town of Tirljian, which is on the border of European Russia and Siberia.

The Bolsheviks took the town, and then the White Russians retook it. During the fighting the Reppun home was destroyed. Fortunately, Mrs. Reppun, Eric, and his brother had left the house and were hiding in the woods when a shell hit it. That night it was decided to escape with the retreating White Army.

Dr. Reppun had assigned to him as wards six husky Czech prisoners. With these six men, four good horses, and two covered wagons, Dr. Reppun and his family struck north away from the armies and diseased and starving areas. This route of 1,000 miles to Omsk in central Siberia was through uninhabited territory used only by hunters and trappers. The way was arduous and the travelers lived by shooting wild game and living off the country. Months of travel finally brought the family to Omsk. The American Red Cross was still operating, and Dr. Reppun was employed.

The Reppuns were still not safe at Omsk. The Communists were 100 miles away, so they fled to Vladivostok. The rail trip of 2,500 miles

took 7 months, with train after train being blown up by Communist guerrillas.

Through the Red Cross at Vladivostok, the Reppuns finally gained entrance to the United States at Hawaii. They arrived broke but not broken in spirit. In Honolulu Dr. Reppun settled his family in an old barn and started a medical practice.

The American way of life gave them the opportunity to work, and Eric's father was able to take care of his family. Eric went to Harvard and studied biochemistry. Eric's brother Fred went to Harvard Medical School. Fred is now practicing on Molokai and is a very able surgeon.

From biochemistry to pineapple raising isn't so farfetched. The raising of pineapples is a fine art; the planter must know chemistry and plant processes. Hormones are used to set the fruit, to slow down ripening, and to control many of the plant's life processes. Fertilizers are used by the ton. Iron sulphate is used to supply iron to the plant, which yellows otherwise. The leaves are studied for water content and plant nutrients; the planter must know what to look for.

Unfortunately, the land has not been cared for. Gullies have formed and thousands of tons of soil have rolled off the fields into the sea.

Kona storms on Molokai are eagerly looked forward to. Six inches of rain, followed by six more, then six more, may result. The first six inches are easily coped with, but when the upper soil body fills, watch out! After a heavy kona storm, Molokai is often ringed with a broad band of reddish sea. Then there are long periods when it doesn't rain and the plants die. The wind blows constantly and the soil dries out fast. At great expense water is hauled to the plants.

Eric is doing his best to take care of these factors. By working with the Molokai Soil Conservation District, he has planted his pineapples in the conservation way, and still has maintained an economical level of production. Where his neighbors' fields have straight lines, his are curved to slow down the rush of water. Cut-off ditches and grassed waterways are maintained. Still, there is apt to be erosion after the kona storms.

As the grain farmers have found out, so have the pineapple people; trash mulch works wonders. Trash-mulch machines have been fabri-

cated by the pineapple companies, and many are using them. The 80 or more tons of trash left after the second pineapple crop is no longer buried, burned, or beaten to an oxidized loss. Instead, the mulch is used for the conservation of soil and water. It remains on the surface between the rows to stop the splash of the rain-drop and allow the water to soak in slowly. More of the water remains in the soil, where it is protected from the winds and is kept available for the pineapple plant for a much longer time.

Eric is the manager of the Pacific Pineapple Co., a newcomer. Compared with other companies on Molokai, PacPine is small, but its fields yield well. Eric has incurred the gratitude of the Hawaiian Homes Commission, from whom he leases land, for the good management practices he has installed. His company began utilizing trash mulch as soon as the first machines were made. Eric has shown how to take care of the land and at the same time make a profit.

The newest planting for PacPine is in the submarginal rainfall belt, where every drop of rain must be retained. Each new planting entails its own set of problems for Eric Reppun, the soil conservationist, and engineer. Other new areas will open and other new problems will arise. But solutions come in the basic American way—cooperation without coercion.

Eric Reppun has seen communism at first hand and he wants no part of it. He has seen the damage which uncontrolled waters do to the good red earth of Molokai, and he wants no part of that either. Through the knowledge he has gained, and through the work of the Pineapple Research Institute, and through use of the facilities of the Molokai Soil Conservation District, there is basis for believing that the good soil of Molokai will remain in place for those who follow.

—NORMAN K. CARLSON.

ONE ROOF SERVES ALL

FARMERS are now receiving “one-stop” service from United States Department of Agriculture agencies in more than half the States and counties across the Nation.

This has come about through an effort initiated in 1951 by Secretary Charles F. Brannan to get all USDA agencies in the States and counties housed under a common roof.

The purpose is to achieve greater efficiency and effectiveness in service to farm people and others. The aim is to make it convenient for farmers to get the help they need. Better and quicker results in conservation and increased production are expected from each dollar of appropriated funds through smoother coordination.

The consolidation program applies to all USDA agencies, and the ultimate purpose is to house all Federal agricultural agencies in the same building in each State and county. Initial effort was concentrated on bringing together offices of the Production and Marketing Administration, the Soil Conservation Service, and the Farmers Home Administration in order to coordinate conservation activities as quickly as possible. New Hampshire recently became the first State to achieve 100 percent consolidation at both State and county levels.

As of September 15, State offices of USDA agencies were housed together in 24 States. In an additional 5 States, such housing had been authorized and space was being sought or prepared. In the remaining 19 States current lack of suitable office space or geographical considerations make consolidation impossible now.

On the county level, agency offices have now actually been combined in 1,770 counties, or 59 percent of the more than 3,000 agricultural counties having agency offices. This number can be expected to rise steadily.

Consolidation of office space provides opportunities for cooperative arrangements which improve efficiency and effect economy. Offices housed in the same building can share space,

WYOMING SECOND IN GAINS.—Although total income from federally owned land in LU projects increased in all the Northern Great Plains Region in 1951, Wyoming's gain was topped only by Kansas. Returns to five Wyoming counties amounted to \$19,691.92—88 percent more than the previous year. Mineral lease rents and royalties accounted for much of the increase in Wyoming.



1. Map indicating before and after locations of Department offices in Claremont, N. H.

2. This foyer and waiting room serves all Louisiana State offices of USDA agencies in new building in Alexandria.

3. This sign in a common conference room indicates arrangement under consolidation in Des Moines, Iowa

4. One mimeographing facility serves all agencies in Richmond, Va.

5. One receptionist does for FHA, PMA, SCS, and FCIC in combined quarters in Syracuse, N Y.



6. It is easy for heads of PMA, FHA, SCS, and FCIC to get together frequently in their building at Richmond.



7. One sign directs farmers to the Sullivan County offices of the Department in Claremont.

8. New York State offices of FHA, PMA, FCIC, and SCS present a united front.

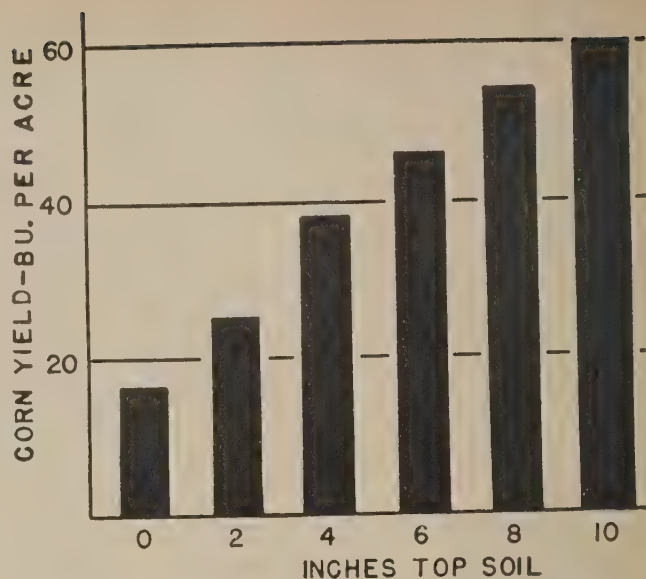
services, and equipment, such as conference rooms, mimeographing facilities, and storage areas. They can also use the same people to answer telephones, receive visitors, take messages, and handle questions.

The common grouping of offices is leading to

additional cooperation among agricultural agencies in giving farmers assistance in their efforts to conserve soil and attain greater productivity. The goal to provide farmers with efficient "one-stop" service in every State and county is being pursued aggressively.

I HAVE been asked to tell you about the place research occupies in our soil conservation program. First let us focus our attention on what constitutes a soil conservation program. I think we can agree that the objective must be to conserve and improve the productive capacity of our lands as required for a permanent and balanced agriculture. In working toward this objective the Soil Conservation Service cooperates with the States to provide essential on-the-farm technical assistance to farmers and ranchers through their own local soil conservation districts. Assistance for part of the costs of applying practices is furnished by Production and Marketing Administration and other agencies.

This technical service calls for: (1) the full utilization of the stockpile of agricultural in-



Erosion reduces the depth of topsoil and corn yields.

OUR WORK IS BASED ON FACTS

By R. E. UHLAND

formation that has accumulated through research and experience of Land Grant Colleges and the Department of Agriculture over the years; and (2) the continued research and study required to meet the growing needs of changing conditions.

To meet this latter need, experimental farms like this one here in Callaway County, the one at Bethany in Harrison County, and a number of others located in different problem areas in the United States were established. The results obtained from experiments conducted on these farms enable us to determine the relationship between soil management, tillage practices, increase in fertility, crop production, water transmission and absorption by the soil, water runoff, and soil-erosion losses and provides us the opportunity of testing new and improved conservation practices. On the basis of these relationships—which vary widely for different soils and climates—systems of conservation farming are planned which provide for watershed protection

and improvement, using the most effective and practical ways of conserving soil and water on lands of different capability classes.

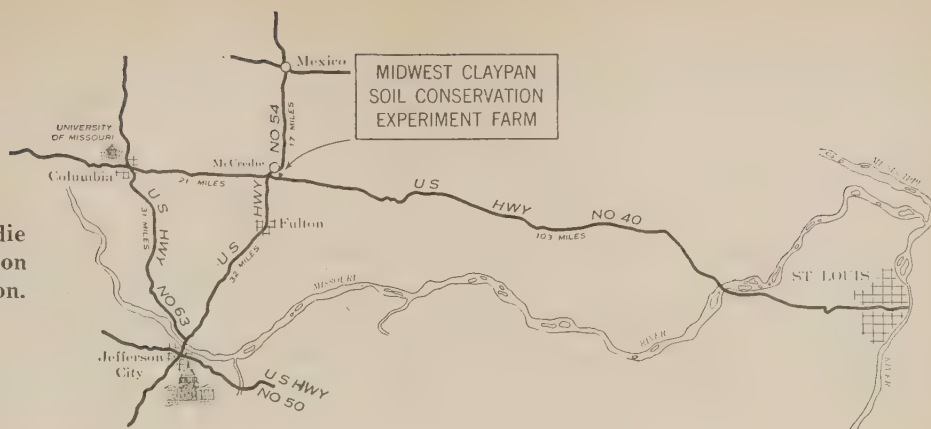
As our conservation program grows, there arises a correspondingly larger number of unsolved problems. This should be met by a concurrent expansion in research facilities rather than by spreading too thinly a restricted research budget.

Our concern in research is to keep our program flexible so as to meet best the needs of our field program. This calls for the termination of studies as soon as the necessary information is obtained in order that our funds and facilities may be directed toward the solution of other pressing problems. We recognize that experiments should not be continued after they have served their purpose, but it is poor economy to discontinue studies before they have supplied their most worth-while information, as has happened on numerous occasions due to the time factor and inadequate funds.

The type of practical applied research which is carried out at this station and other similar stations throughout the country is founded upon

Note.—The author is research specialist, Soil Conservation Service, Washington, D. C. This article is taken from a paper presented at the recent Field Day celebration at the soil conservation experiment farm, McCredie, Mo.

Stations like that at McCredie supply needed information on soil and water conservation.



the basic information accumulated from prior research. When the solution of a given problem appears near from experiments on the station farm, its practical application is developed through field tests carried out on farms in the area where the problem exists.

No nation has too much fertile land. And no nation can afford to lose any of its productive land. Here in Missouri you are fortunate because your farm lands are comparatively young. They have not eroded so severely as lands in some sections of the country. Therefore, much

of your good land remains and needs only to be conserved and improved in order to meet the needs of our growing population.

The population of our country is steadily increasing. By 1960, the Census Bureau estimates that there will be at least 18 million more people in the United States than in 1950. It is estimated that by 1960 we will need 2.6 billion more pounds of meat, plus 8 billion more quarts of milk, and 583 million dozen eggs per year to feed our increased population. This requires an increase of more than 8 percent in our production of food and fiber over that produced in 1950 if our present standard of living is maintained.

A few years ago I made an analysis of the erosion data from all of the soil and water conservation experimental farms. I calculated the fertility losses under different crop covers and land use. This study indicated that on the basis of land use practiced in 1945-50 and the average long-time soil losses recorded for different crop covers in the different States, plant nutrients having a value *in excess of 17 billion dollars* (on the basis of cost of commercial fertilizers) were lost annually by erosion and through harvested crops from cropland in the United States.

To replace the most common fertilizer nutrients (nitrogen, phosphoric acid, and only one-fourth of the potash that is removed each year by erosion alone) would call for an annual expenditure of approximately $7\frac{3}{4}$ billion dollars!

This shows the critical problem ahead of us in the field of conservation and it is certain that ultimate success in maintaining and improving the productivity of our land will depend upon how thoroughly we can prevent erosion losses.

According to reports of the National Ferti-



Root zone of claypan soils has been deepened by deep tillage and fertilizing.

lizer Association, approximately 849 million dollars were spent for fertilizer in 1950. On the basis of figures published by Parks and Mehring in "Agricultural Chemicals" for October and November 1949, the purchased plant nutrients were about twice the total removed by crops in 1947 after allowing for the nutrients returned in residues and manures. It represents just a little more than 10 percent of the total loss through erosion and harvested crops—excluding the great loss of potash in the Western States.

Farmers have found it necessary and profitable to use larger and larger quantities of fertilizers. This is due in part to their efforts to offset soil-nutrient losses caused by erosion. In 1880 only a few hundred thousand tons of low-analysis mixed fertilizers were used. In 1950, 18 $\frac{1}{3}$ million tons were used. During that interval the plant-food content was raised from about 12 units in 1900 to 22.55 units in 1949. Domestic consumption of fertilizers in the crop year ended June 30 this year topped all prior records, rising 14 percent above 1950-51 to a total of nearly 21 million tons.

During the period 1940-50 the use of fertilizer increased 598 percent in Missouri, 1,144 percent in Illinois, 820 percent in Kansas, and 2,007 percent in Iowa. Notwithstanding this large use of fertilizer, I estimate that a little less than 8 percent of the nitrogen that was lost through erosion and through harvested crops in Missouri in 1950 was returned in fertilizer and manure. About one-fifth of the phosphoric oxide was returned, and only 1 percent of the potash.



Thirty-six-inch sweeps prepare seedbed in volunteer wheat, leaving residue on surface.

With this great current erosion loss it is impractical if not impossible for farmers to replace all nutrients removed from the soil each year by crops and by erosion. In order to maintain or improve soil productivity economically, effective action in reducing erosion losses is imperative. It is impossible either to maintain or improve soils without first stabilizing them. Our major losses of plant nutrients from sloping cropland are through erosion. Also with poor management all soils lose their structure and tilth and yields decline.

Good soil structure and tilth as well as high organic-matter content in the topsoil are always associated with high crop production if necessary nutrients and soil moisture are present. In 1939 and 1940 our cooperative studies with the State agricultural experiment stations of Missouri, Iowa, Indiana, and Ohio showed that at all locations the depth of topsoil had been reduced by erosion. The extent of the reduction of topsoil was governed by the type of management that had been practiced on each field. Soil and water conservation practices were shown to check erosion and bring immediate and continuing increases in corn yields.

The direct relationship between soil depth and yield was noted at all locations. For example, at Fowler, Ind., the average yield of corn in 1940 for those locations in 18 fields that had more than 12 inches of topsoil was 70 bushels per acre. This is in contrast with a yield of only 20 bushels for areas in the same fields that had lost practically all of their topsoil. For areas where the depth of topsoil averaged between 5 and 6 inches, the yield was 47 bushels per acre. The average soil depth for all fields was 8.3 inches, with an average yield of 55 bushels.

At Bethany, the average corn yield for 7 fields in 1940 was 43 bushels and the average topsoil depth was 5.9 inches. For those locations that still had more than 12 inches of topsoil, the yield averaged 68 bushels per acre, while for those areas that had lost nearly all the topsoil, the per-acre yield was only 15 bushels.

When I was attending the university in this State the level prairie soils of northeast Missouri—the claypan soils—were frequently referred to as the only large area of land in the State where there was little or no erosion. A

reconnaissance erosion survey made in 1934 under the direction of Dr. L. D. Baver showed, however, that erosion had already claimed a big toll on these soils. These findings, to a large degree, were responsible for the establishment of this experimental farm which you are visiting today.



Equipment used to measure runoff and erosion from plots in different crops and different cultural treatments.

Our conservation technicians are called upon to plan and design for millions of dollars worth of water-disposal systems and control structures on farms and watersheds. This includes the design for water-control structures such as terraces, waterways, channel controls, drop inlets, and various structures such as dams, reservoirs, ponds, spillways, sediment traps, and control devices for drainage, water conveyance, and application to land in irrigation. Judging from the interest in flood control and conservation, we can expect this type of work to increase. Material savings in construction can be made only if we have more accurate and complete hydrologic information upon which to base our designs.

To furnish the information needed, much research is required. We are particularly interested in the effect of alternate systems of land use on the rate of runoff, water yield, contributions to ground water, and sediment production and transportation. The hydrologic effects of alternate systems of land use must be determined in various sized areas, starting with small plots and carrying through to sufficiently large areas to evaluate their effects on base flow and

floods. We must also evaluate the climatic factors as well as the land factors that affect erosion, water yield, and peak rates of runoff.

Our research has shown that the protection offered by vegetation against wind and water is one of the most effective erosion-control tools.

Grass protects the soil against the forces of

wind erosion by reducing the velocity of the wind at the ground surface so that it no longer has sufficient energy to cause soil movement, and the eroding soil is trapped. Its dense sod protects the soil from the force of water erosion by dissipating the force of falling raindrops and reducing the flow of surface water. Grass also plays a major role in the production and maintenance of organic matter and nitrogen and promotes good soil structure and tilth at a low cost.

The organic matter and nitrogen content of most mineral soils is a fairly good index of productivity. Their importance is demonstrated on the Sanborn plots at Columbia, Mo. The effectiveness of grass in reducing erosion and slowing down the rate of microbial oxidation of soil organic matter is indicated by the results on that experimental field.

The amount of nitrogen found in the soil on the different plots varied in direct proportion to the type of cropping that was practiced. I have made a further study of the data on these plots taking into account the erosion losses which were undoubtedly responsible for much of the loss of organic matter and nitrogen.

On the basis of erosion data on the old erosion



Grass has major role in beef production. Bromegrass and Ladino clover made 493 pounds per acre in 1952.

plots at Columbia, it is obvious that subsoil has been mixed with topsoil on the plots cropped annually to corn every time the land was plowed for at least 30 of the 50 years of experimentation. The recovery of nitrogen on the corn plot that received 6 tons of manure annually was reported as 52 percent, compared to a nitrogen recovery of 73 percent for a 4-year rotation with the same addition of manure. Had the organic matter contained in the upper subsoil (which runs about two-thirds of that in the plow depth) been taken into account, the nitrogen recovery would have been much lower for the corn plot than the 52 percent reported.

Before we can hope to maintain or increase the soil organic matter, we must check erosion, which is a selective process. This is shown by the fact that the organic-matter content of eroded soil material may run as much as 10 times as high as the soil from which it erodes. Thus if erosion takes away or wastes from one-half to three-fourths of the manure or fertilizer we apply, we cannot hope to get our money's worth from them.

In order to furnish added protection against erosion when growing tilled crops, research has pioneered in developing cultural techniques for utilizing crop residues as surface mulches. These organic residues are left on the soil surface when preparing seedbeds, by using sweep-type machines for tilling the land instead of ordinary plowing.

We cannot solve our problems by any simple prescription. The part that research must play in our soil and water conservation program is to find out how to grow cultivated crops in the amounts needed without excessive erosion. We know that for maximum protection, mulch or residue farming must be supported by fertilizing, contouring, row drainage, and the interception of excess water by terraces and other measures.

It is necessary that we go further, however, in our developments in these studies. Leaving crop residues on the soil surface introduces many challenging problems which vary widely



This corn picker leaves the stalks as an effective cover against erosion.

for different areas. This system of farming may call for some radical changes in weed and insect control and use of fertilizer, especially with respect to nitrogen.

The research findings at this Claypan station show the way these soils respond to conservation farming practices. Corn grown in a 4-year rotation with 2 years of meadow and with other supporting conservation practices has yielded an average of 109 bushels per acre over a 4-year period. This is in contrast to an average yield of only 18 bushels of corn on adjacent plots cropped to corn and oats without soil-conditioning crops or other conservation treatments. First-year corn in a corn-corn-oats-meadow rotation has averaged 108 bushels compared with 76 bushels from second-year corn. Both had equally high fertilizer treatments.

The urgency for sound knowledge and education in conservation and agriculture in the United States is better appreciated when we take into account that a small percent of our population is doing all the farming.

The records show that in colonial times about 85 percent of our population was busy producing food and fiber for themselves and the other 15 percent. It happens that at the present time this situation is exactly reversed. Now 15 per-

(Continued on page 112)

Standley cattle graze on fescue.

Hugh Standley, and fescue.



HUGH Standley saved more than \$4,000 on cattle feed by properly establishing and managing 32 acres of tall fescue grass.

Using the facilities of the Okfuskee (Okla.) Soil Conservation District, Standley is applying a coordinated conservation program to his farm southwest of Okemah. As part of the program, he planted 300 pounds of tall fescue and 8 pounds of Ladino clover seed on 32 acres of fertile North Canadian River bottom land. That was in the fall of 1950. Ordinarily the recommended planting rate is 10 to 15 pounds of fescue and 1 to 2 pounds of Ladino seed per acre. He prepared the seedbed well.

Sixty rainless days followed, and most of the fescue didn't come up until the following spring. Standley withheld grazing that spring to produce a seed crop and assure fast growth of the fescue in the fall.

In October 1951, Standley turned 127 2-year-old heifers and steers into the 32 acres and kept them there until April. They were not allowed to graze the pasture around the clock. They were put in about 1 o'clock each afternoon and taken out around 4 or 5. They were kept

Note.—The author is soil conservationist, Soil Conservation Service, Holdenville, Okla.

MATHEMATICS OF A MANAGED PASTURE

By TOM J. DAVIS

out altogether when the pasture was wet or icy.

This sort of management let the cattle get a good fill of high-protein forage without walking around enough to damage the growth. The fescue was never eaten below 3 or 4 inches in height. That's the secret of good growth.

Standley believes that if he had allowed the cattle to stay on the pasture 24 hours a day, they would have damaged the fescue and clover beyond recovery.

When not on the fescue, the animals were kept in an adjoining pasture and fed 15 bales of Johnsongrass-lespedeza hay a day. The fescue pasture saved 15 bales of hay daily. Not a pound of cake or other supplement was fed as the fescue pasture supplied enough protein.

Standley says that without the fescue he would have had to feed 2 pounds of cake per head daily. By having and properly managing the winter pasture he saved 82½ tons of hay valued at \$2,475 and 21 tons of cake valued at \$1,932. This was a total saving of \$4,407 during the 1951-52 winter.

Cost of seeding the pasture was \$225 for the fescue seed, \$13.20 for the clover seed, and \$230 for 10 tons of rock phosphate, less \$120 PMA payment, or \$110. This made his total cost, exclusive of seedbed preparation, \$348.20. The net saving credited to the fescue therefore amounted to \$4,058.80.

Standley took the cattle off fescue April 1, 1952, to get another seed crop. Otherwise,

grazing could have continued 2 months longer. He harvested 5,000 pounds of clean fescue seed in June.

"I plan to plant 100 additional acres of fescue to help balance my year-round grazing scheme," Standley says. "Hereafter I'm going to use 100 pounds of ammonium nitrate per acre as top dressing each spring and fall, as this gives a good supply of nitrogen for plant growth and seed production.

"When I can save better than \$4,000 on a feed bill while wintering my cattle in good condition, harvest 5,000 pounds of seed and still have my pasture, fescue has a definite place in my conservation program."

MODERN CATTLE DRIVE

(Continued from page 100)

bluestems. As a result there is a larger volume of forage available when the cattle arrive for their summer stay on the cut-over woodland range.

Since cut-over range loses much of its grazing value in the late fall and winter, supplemental pastures or extra feed must be furnished when cattle are kept in the area throughout the year. The Richard brothers have found the marsh range the solution of their winter grazing problem.

WORK BASED ON FACTS

(Continued from page 110)

cent of our population produces the food and fiber required for themselves and the other 85 percent. This obviously places a great responsibility upon our farmers who produce and also upon our research and other agricultural specialists who are called upon for technical information and assistance.

With the active support and assistance of soil conservation district supervisors and farmers, and the cooperation of the State agricultural experiment stations and colleges, the conservation program will continue to move forward and help to establish a more permanent and profitable type of agriculture."

LU LANDS BRING GOOD RETURNS IN NEBRASKA.—In Nebraska the Title III lands are leased to the Sugarloaf and Pine Ridge Soil Conservation Districts. Returns to Dawes and Sioux Counties from the federally owned land in the Land Utilization project last year were \$4,016.80, or about 2½ percent more than the preceding year. Dawes County's share was \$1,762.97, while Sioux County received \$2,253.83.

Mrs. Katie Dearing

By VIRGIL S. BECK

A DEFINITE GOAL



MRS. Katie Dearing is a most unusual person. Although well in her fifties, she manages a cold-storage food locker in Willcox, Ariz., for 7½ hours a day, cutting and wrapping the meat herself. After her work there is finished, she drives to her 160-acre farm, or small ranch, 8 miles from town, where she does all the work single-handed.

A native of Kansas, Mrs. Dearing and her husband moved here from Weatherford, Okla., in 1926. For several years they rented land and farmed on a small scale. In 1940 they rented the 160 acres which Mrs. Dearing now operates. When they bought it in 1944, the place was in native grasses, so they started buying and running a few cattle.

The Dearings were getting along fairly well until Dearing died in December 1947. Mrs. Dearing had to decide between selling the farm and going back to Kansas, or of staying and trying to handle the farm alone. She long had had a vision of what she wanted to make of her land, so she chose the hard way—to stay with her land. But she couldn't make a living from the farm by herself, so she went into Willcox and got a job with a dairy. Then she started buying young calves which she could fatten on her grassland at a profit.

Note.—The author is in charge of current information, Soil Conservation Service, Albuquerque, N. Mex.

She watched her neighbors improve the livestock carrying capacity of their land by irrigating and seeding permanent pastures. She believed she, too, could benefit from a pasture-improvement program, but she would have to go slow because of her limited finances. The widow managed to have an irrigation well drilled in the summer of 1948, but it was not until May 1949 that she was able to buy a pump and have it installed.

She believed that the carrying capacity of her native range grasses—sacaton and tobosa—could be greatly improved by irrigating, so she hired a man to build some irrigation borders for about 20 acres.

"He made such a mess of the borders that I decided it would be better to do the work myself. I bought a small tractor and started doing the farm work after I had finished at the dairy," Mrs. Dearing recalls. "I tried to build an irrigation ditch to take water to the borders, but it didn't work. I didn't have the proper training in this type of work.

"By this time I had learned about the Willcox Soil Conservation District and the help of SCS technicians that could be obtained through the district, so I applied for assistance."

Mrs. Dearing signed a cooperative agreement in August 1951, and Walter Diehl, SCS representative, helped her plan a soil and water conservation program.

She had left the dairy in March 1951, and had started managing the Zero Cottage cold-storage locker plant. There are 120 lockers in the plant, and a lot of hard work is entailed. However, before and after her 7½ hours at the plant, she has managed to get a good start on her conservation program, doing all the farm work herself.

In September 1951, she seeded a couple acres of permanent irrigated pasture near her modest home. On the recommendation of SCS, she used a mixture of perennial rye, tall meadow fescue, Hardinggrass, birdsfoot trefoil, timothy, and lovegrasses, and got a good stand. Last April, she applied 100 pounds of ammonium nitrate to the pasture and it has made excellent growth. The pasture was grazed a little this spring and will be cut for hay to feed next winter.

Around 65 acres of the sacaton and tobosa pastures now have been bordered and irrigated.

These native pastures, fenced for rotation grazing, are improving rapidly and are providing good grazing for the livestock. Mrs. Dearing also has seeded some lovegrasses in the pastures. These are doing well, and she plans to keep adding other grasses. Around 80 acres still are in native grasses that cannot be irrigated at present.

Mrs. Dearing has 17 head of beef cattle, including 3 of the mixed Holstein-Herefords that she bought as calves. As she sells off the mixed breeds, she is replacing them with purebred registered Herefords. She has 5 head now and plans to increase her herd as the carrying capacity of the pastures is improved.

Near her home, Mrs. Dearing has established an orchard of about 30 trees, including peaches, apples, plums, and pears; she also has some grapes. In addition, she has a farmstead wind-break coming on, mainly Arizona cypress, which she started herself.

The pastures now support the herd with the exception of a little cottonseed cake and salt that are bought for winter feeding.

"It's a lot of hard work," Katie admits, "but eventually I want to have a small cattle ranch that will support me. I want to get all of the 160 acres leveled and in permanent irrigated pastures and alfalfa that can be cut for winter feed. I also want a herd of purebred Herefords in proportion to the feed I can produce. Too, I would like to build an irrigation reservoir and stock it, because I enjoy fishing."

THE FUTURE OF OUR NATURAL RESOURCES.—

The May 1952 issue of *The Annals*, published by the American Academy of Political and Social Science, is devoted to "The Future of Our Natural Resources." Its contents are included under six groupings: The Setting of Conservation, Mineral and Energy Resources, Forests, Soils, Water Resources, and General. All the articles are by leading authorities in the special fields covered. Among these authorities are Stephen Raushenbush, John H. Baker, Alan M. Bateman, Howard A. Meyerhoff, Samuel T. Dana, Hardy L. Shirley, Richard Bradfield, Paul B. Sears, Hugh H. Bennett, and Anthony Wayne Smith.

MONTANA RETURNS.—Returns to 10 Montana counties from federally owned land in the Land Utilization projects in 1951 were \$40,654.18, or nearly 17 percent more than the previous year.

Conservation at Rancho de la Sombra

MRS. Fred H. Insinger, widowed British war bride of World War I, believes that soil and water conservation practices are just as important on a small ranch as they are on one of hundreds of acres.

She is carrying out a complete conservation program on her 40-acre Rancho de la Sombra, on the Sabino Canyon road about 10 miles north-east of Tucson with only the help of an American-born Chinese, Charley Yee, who was her husband's orderly during World War II.

The late Colonel Insinger, a West Point graduate and veteran of two wars, picked up Yee as his orderly at Fort Winfield Scott in San Francisco in 1942. At that time Yee was stationed with a motor pool and previously had served as houseboy and bartender in California.

Colonel Insinger had taken a liking to Arizona, so when he retired from the Army in 1947, he came here and bought the 40-acre tract and brought his former orderly with him from La Jolla, Calif.

The 40 acres were part of an original homestead of numerous cultivated fields on the site of an old Indian pueblo. Still visible was an animal trail from the nearby Santa Catalina Mountains to an old spring on the tract.

When the Insingers acquired the place only 15 acres had been in cultivation and the rest was in woodlands and building sites. In 1947, a Mexican had farmed about 7 acres, growing

By
VIRGIL S. BECK



Mrs. Insinger and companion inspect grasses in irrigated pasture.

watermelons and chili peppers. Part of the land had been irrigated with water brought through a complicated system of pipes and open ditch. The rest could be irrigated only when flood waters were available from Rocky Canyon or from the Tanque Verde Creek.

The Insingers selected the highest point of their land for the construction of their beautiful home. However, they also wanted to get the little ranch in the best possible shape for growing feed for livestock. The colonel called upon the Pima County Soil Conservation District for assistance and signed a cooperative agreement in November 1947. SCS technicians working with the district helped plan the conservation program.

First, a 115-foot irrigation well was drilled near the headquarters and a 30,000-gallon storage tank was constructed so irrigation could be made by gravity flow. Pipe lines were installed from the tank to the top of each field so irrigation could be done with the minimum loss of water.

Fields were straightened to include all land that could possibly be cultivated and were finish-leveled, with the borders being made narrow enough to make the best use of the small stream of water from the storage reservoir. Head gates were installed in each border. The fields were fenced to facilitate pasturing of the entire ranch or any separate field as desired.

Note.—The author is in charge of current information, Soil Conservation Service, Albuquerque, N. Mex.



An ancient cottonwood, probably dating back to a time when this was the site of an Indian pueblo, overlooks this picturesque fishpond.



Insinger home, built in 1947.

Sixty Rambouillets are kept on the ranch. Most of the lambs are sold.



Baled hay from one of the irrigated pastures.

After the fields had been rearranged there were 20 acres of irrigable land and about 20 acres in desert mesquite that cannot be cultivated because of lack of water. Two irrigated pastures were seeded to a suitable mixture of grasses and legumes. The remainder of the cultivated land is in hay meadows.

Last year 660 bales of hay were cut from 15 acres in six cuttings. This spring, when the livestock could not keep up with the grass growth of the irrigated pastures, 43 bales were cut from 1.2 acres. All feed is consumed by livestock on the ranch.

In 1948, a 2½-acre orchard of prunes, apricots, peaches, almonds, and pecans was planted and is doing well. Papago peas are planted in the orchard and turned under to improve the soil fertility. A windbreak of eucalyptus trees has been established along the rear of the headquarters, and a fishpond has been constructed on a small seep area that could not be cropped.

The Insingers started out with a flock of about 50 Rambouillet ewes and one ram.

Mrs. Insinger now maintains a flock of around 60 head and sells most of the lambs. In addition, she has four horses for recreational use.

In April 1950, while on the way to Holland, of which his father had been a native, Colonel

Insinger died at sea on the SS Amsterdam.

"When my husband died, I fully expected Charley Yee to leave for he had had no experience with farming until Colonel Insinger brought him here in 1947," the widow says. "However, after having been so closely attached to my husband for about 8 years, I guess he just wanted to stay around and carry on the work."

Anyway, Charley Yee has stuck by Mrs. Insinger and does a very capable job of attending to the farming activities. However, it is Mrs. Insinger who knows all the details about the farming activities.

She can tell exactly what grasses she has in the irrigated pastures, how much acreage is in alfalfa and other crops, what the yields are, how many head of sheep she has, and what is being done to conserve the soil and water on her attractive little ranch.

DISTRICT FARMERS WIN.—The achievements of 11 farmer-applicants were considered in the Washington County division of the 1951 Rural Networks Radio (N. Y.) food-production contest. All of the six first scored as winners were found to be members of the Washington County Soil Conservation District. Two subsequently were disqualified because they were members of the local sponsoring committee. Of the two runners-up who moved into the vacated spots, one also was a district cooperator, giving the district the first five positions. The contest was based on output units per man, with specific units assigned to 65 different production factors. William Jolly, Salem, was first-place winner.

BOTH GEESE AND BEEF BENEFIT

By **BOYD CHAMPION**

A GOOD land-use program is the best wildlife program, in the opinion of Tibbs Clarke, manager of the Kentucky Woodlands Wildlife Refuge of the United States Fish and Wildlife Service in Trigg County, Ky.

Clarke came to this conclusion as a result of the development of two 35-acre pasture areas on the refuge. These were prepared and seeded with assistance of the Trigg County Soil Conservation District, to provide green pasture for wild geese on the flyway south. Four thousand geese and fifty deer used the pastures all last winter. Furthermore, one of the areas was rented and stocked with 20 steers for summer grazing.

The pastures will serve as demonstration plots for development of other areas in the refuge, and they will promote also an interest in pasture improvement among farmers throughout the soil conservation district.

The program began in July 1951, when the refuge undertook to improve some of its geese range and develop summer pasture. "We weren't too sure what we wanted, so we called in the Trigg County Soil Conservation District," Clarke explained.

As the first step, Dan Amos, SCS soil surveyor assigned to the district, made a land-capability map of the area. As a result of the survey, I recommended a conservation program that would include development of pastures, draining of some excessively wet areas, construction of diversion ditches around certain galled spots, and soil tests to determine lime and fertilizer requirements.

"We began to clear the brush, fill the gullies, and prepare a seedbed in late July," Clarke related. "An SCS technician laid out the diversion ditches and drainage channels and showed us how to build them.

"We are keeping a record of the seed and

fertilizer used, the weight of the cattle put on the pasture in the spring, and their weight when taken off in the fall. This will provide us with a demonstration plot for other land in the refuge and will give the soil conservation district some valuable information on the cost of seeding pasture and the probable returns."

When a visiting farmer from Missouri was shown one of the pastures 8 months later, with 20 head of steers grazing the knee-deep growth of grasses and legumes, he was amazed to learn that before improvement the area would have done well to support 2 cows.

"Well, I'm from Missouri, and you've shown me," the visitor commented. "Now tell me how you did it."

As a part of the over-all conservation program for the refuge, the Fish and Wildlife Service has entered into an agreement with the soil conservation district to produce sericea seed on some worn-out land. The district furnished seed and fertilizer for seeding 32 acres this spring and will receive a share of the seed for distribution at cost to farmers in the county.

"I am convinced that a good land-use program is the best wildlife program," Clarke said recently. "We are having capability maps made of all our land, including 55,000 acres in timber and 15,000 acres in farm and brush land.

"We use the woodland primarily as refuge for wildlife. We rent the land that is suitable for pasture and crops to farmers in this area. I am urging the farmers to take advantage of the services offered by the local district."

The district supervisors are equally well pleased with the results. Berlie Futrell, chairman, said:

"The people in the county need to use their land more wisely. We believe these fields where accurate costs and gains can be kept will be useful examples of the benefits of sound conservation farming."

So the conservation program developed to provide green pasture for geese on their flyway south will benefit farmers too. It is increasing

Note.—The author is work unit conservationist, Soil Conservation Service, Cadiz, Ky.

the value of poor land and producing beef as a byproduct.

"We think that we have found a good solution in our refuge management by getting the best possible land-use program on these areas," said Larry Givens, of the United States Fish and Wildlife Service. "We can have a better wildlife refuge and increase the income of the people who rent the land from us."



WILDLIFE BEFRIENDED.—Alarmed by the way residential developments are constantly crowding wildlife out of their natural habitat, Mrs. Dirk Brouwer, president of the Riverside (Conn.) Garden Club, has set aside a small acreage of her property as a wildlife sanctuary. The Fairfield County Soil Conservation District helped make a complete conservation plan. The sanctuary became the central theme at the club's conservation exhibit at Riverside school, with the idea of interesting others in like developments. Children joined in making display material. The model of a check dam made by a student won one of the high awards.

BIOLOGY TEACHERS ORGANIZE.—The conservation project launched last year by the National Association of Biology Teachers has received wholehearted support. Over 30 national conservation organizations have endorsed it, and their representatives are serving on the advisory committee.

State committees of biology teachers who will undertake conservation activities in their classes have been or are being organized in all 48 States.

There are two distinct objectives of the project—(1) to encourage biology teachers to engage in some conservation teaching, and (2) to obtain descriptions of outstanding techniques used, for publication in a series of leaflets on conservation teaching.

To help biology teachers understand the type of activities deemed most helpful in teaching conservation, a set of criteria with illustrative examples was prepared in a series of national and State meetings, which have now been published and distributed for use by members of the State committees and others interested in helping with the project. These can be secured from the State and regional chairmen or the project leader.

Each State committee has organized an advisory committee composed of representatives of the State Department of Public Instruction, the State Teachers Association, the State Department of Conservation, and other resource agencies.

The advisory committee in each State is to assist the State chairman and the committee of biology teachers in developing plans for interesting other biology teachers in conservation teaching, using summer workshops and teachers conferences to enroll additional members, and to solicit descriptions of outstanding results with various techniques.

State committee meetings will be held to assist in promotion and development.

The grant-in-aid of \$10,000 made by the American Nature Association is being used to underwrite the expenses of State committee work, regional and national meetings to organize the project, and work conferences to review and edit the descriptions and summaries. Several States, including Indiana, North Carolina, and Tennessee, have received additional grants from the National Wildlife Federation.

The following members of the executive committee will be glad to have suggestions of good conservation projects under way and to receive any offers of help: Richard L. Weaver, chairman, P. O. Box 5424, State College Station, Raleigh, N. C.; E. Laurence Palmer, Fernow Hall, Ithaca, N. Y.; Lydia Elzey, 311A Burrows Building, State College, Pa.; Howard Michaud, 824 N. Main St., West LaFayette, Ind.; Leo Hadsall, Fresno State College, Fresno, Calif.; John Harrold, 110 East Hines St., Midland, Mich.; George Jeffers, Longwood College, Farmville, Va.; and Betty Lockwood Wheeler, Mt. Pleasant, Mich.

—RICHARD L. WEAVER.

KANSAS ADDS IRRIGATED LAND.—During the past fiscal year, Kansas added over 12,000 acres of irrigated land, bringing the total to date to nearly 63,400 acres. Land on which irrigation systems have been redesigned and improved is over 76,400 acres.

In accomplishing this, 934 water-control structures have been installed, 1,331 miles of supply and field ditches have been built, 83 irrigation dams have been built, 531 irrigation wells have been developed, 123 surface-water pumps have been installed, and nearly 51,200 acres have been leveled for irrigation.

RETURN FROM FEDERALLY OWNED LAND IN SOUTH DAKOTA.—Eleven counties in South Dakota have federally owned land in the Land Utilization projects. Last year returns from it amounted to \$29,942.13, or nearly 17½ percent more than the previous year.

By counties, the returns were Custer, \$1,606.55; Fall River, \$6,117.14; Jackson, \$2,882.07; Pennington, \$5,088.24; Jones, \$1,335.04; Lyman, \$4,022.97; Stanley, \$2,399.36; Sully, \$825.04; Corson, \$1,258.90; Perkins, \$4,407.85; and Ziebach, \$3.97.

COUNTING CATTLE FROM THE AIR

By J. J. DEUSER

THE light airplane is rapidly becoming one of the real work horses in soil and water conservation in the Northern Great Plains.

It is being used successfully to speed up soil conservation surveys and reduce their cost per acre. It is an effective means of showing people the need for conservation and what can be done about it. It has helped several SCS technicians speed up conservation planning on large ranches. It has been used for seeding grass in difficult range areas where reseeding was necessary.

Now it has been used for making counts of livestock on a Land Utilization project, in the interests of improving range management. Whether or not trespassing livestock was on the range was determined in a short time through the use of a light plane.

Use of such a plane for livestock counts in the summer of 1951 took place in the vicinity of Wall and Interior, in western South Dakota, where the Cane Creek, White River, and Eastern Pennington County grazing districts handle the allotment of grazing privileges on land administered by the Soil Conservation Service. The districts hired plane and pilot. Since the SCS is also interested in uses being made of the Government-owned land, an SCS employee went along to do the counting. Livestock counts by plane were made again this year.

The area is one that had discouraged taking counts on the ground. It ranges from rather sharply rolling to out-and-out badlands. It would require many riders and several days' time—an expensive proposition. Even then, there would be the likelihood of missing some stock in rough country.

Yet, with an airplane to give a top-side view, the counts were finished in a relatively short time. It was possible to see all the pasture and into every draw where livestock might be located.

Take one pasture, for example—the Weta community pasture of 34,920 acres. Some of it is fairly rough, although mostly it is rolling country. The count was made in less than 2 hours. By comparison, it is estimated that at least 10 to 15 riders would have to work one or more days to make such a count in that pasture.

Several things were learned:

First, the count should be made early in the summer—preferably in June. Later in the year, it is more difficult to distinguish spring calves from yearlings from the air.

Second, early morning is the ideal time. Then cattle are spread out and grazing. Later on, after they go to water, they bunch up until late afternoon or evening.

Third, the plane should be able to travel slowly. A helicopter would be best, but is seldom available. Next best is one of the popular light planes. The faster the plane travels, the greater the chance for error.

Fourth, counting from a plane establishes only the total number of livestock in the pastures. If there are too many, the animals must be brand-counted on the ground to determine the owners of the excess stock. If there are no trespassing stock, no further action is needed.

Fifth, besides the savings in time and cash by the use of a plane, there is no loss in weight, as they are not disturbed during the counting.

Sixth, a tally counter is needed to keep track of the number counted. It's easy to forget the number already totaled or become confused while determining which have or have not been counted.

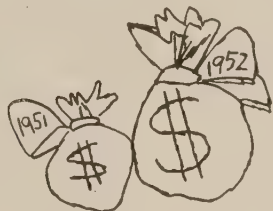
Seventh, stockwater supplies and salt conditions can be determined at the same time.

Livestock counts on range land, whether publicly or privately owned, are desirable because good range management requires that the number being grazed be kept within proper bounds. This is for the purpose of keeping grasses in their most productive condition, protecting the land from erosion, and conserving

Note.—The author is soil conservationist, land management, Soil Conservation Service, Lincoln, Nebr.

the largest amount of moisture. Unless counts are made, there is no way to detect whether strays have come onto the range or whether, in the case of a lease or permit, more stock are on the range than the contract authorizes.

Experience near Interior indicates that the light plane offers a way to get this job done quickly and cheaply. It is anticipated that a similar counting program will be inaugurated in other areas in South Dakota and adjoining States.



KANSAS LEADS.—In the Northern Great Plains Region the past fiscal year, Kansas had the greatest increase in returns from federally owned land in the Land Utilization project with \$11,862.10—more than double the returns for the previous year.

Stevens County, with only 840 acres of federally owned land in the project, received \$97.27. The rest, \$11,764.83, went to Morton County, in which nearly all of the LU project is located.

SCIENCE POINTED WAY.—When technicians working with the New Haven County (Conn.) Soil Conservation District advised Roxanne Beardsley to clear a thick growth of cedars and plant Ladino in a section of her 60-acre farm along the ridge between Southbury and South Britain, she says that "it sounded crazy because the grass there was sparse, wiry, and dried up by July 1, and Ladino needs moisture."

The soil is broken-down traprock, however, the best in Connecticut. Last summer the 9 acres of Ladino, first established there, gave complete daytime pasture for 18 cows from May 9 through October 4. On one-half acre per cow per day, the animals were sated at 11 a.m. and lying down for the rest of the day. On June 1, "when the Ladino was getting ahead of the cows," cuttings from half of the acreage were put in silo.

Again, the technicians advised locating a farm pond in a natural water bowl. Miss Beardsley wanted to move it 50 feet, close to a border fence, but followed the technicians' advice. When the bulldozer got down 4½ feet, after a 40-day drought without any rain, water gushed in so fast that two pumps had to be used to keep the machine from drowning. Her comment: "When SCS technicians say it is so, it must be so. Our farm is nearly twice as productive today as it would have been if we had ignored their advice."

MORE FEED FOR WYOMING LIVESTOCK.—New land for development of irrigation lies both inside and outside of formal irrigation projects. It includes parts of ranches where added feed production was needed and parts of dry-land farms. It includes units already partially irrigated.

During the past fiscal year nearly 8,000 acres were added to Wyoming's irrigated land, bringing the total to 44,190 acres. Land on which irrigation systems have been redesigned and improved is 136,204 acres.

SOIL CONSERVATION DISTRICT NURSERY.—In the face of a heavy work load in the Barnstable (Mass.) Soil Conservation District, supervisors voted to meet the need for planting stock by starting a tree and shrub nursery. The county government cooperated under an agreement to provide a site at the County Farm, where a nursery is now being established. Plantings will be light during the first few years, so the supervisors can profit from their production experiences. Potter County Soil Conservation District in Pennsylvania has a similar project that is 6 years old and is producing 50,000 seedlings annually for district cooperators. In this instance, one of the district directors provided the site.

GRASS DIGGINGS.—"It looked like a community workday for a sick friend on the farm of A. L. Stone, Altha, Route 1, when word got around that he had Coastal Bermuda-grass for sale."

That was the comment of a reporter for the Dothan, Ala., *Eagle*, on attending a "grass diggin" in the Chipola River Soil Conservation District across the State line in Florida.

The remarkable thing about this grass-digging operation was that the farmers, whose fathers before them had fought Bermuda-grass all their lives, actually were digging the grass and hauling it away to plant on their own farms.

As farmers from three counties gathered to take part in the digging, a farm-implement dealer of Marianna, Fla., turned out with a rotary hoe to help out.

Stone planted 8 acres in the grass in July 1948 with foundation stock from the Brooksville Nursery of the Soil Conservation Service, furnished through the soil conservation district. He agreed to make the grass available to other district farmers at the proper time.

This is an example of how the district has helped in the distribution of planting stock of this vigorous tall-growing hybrid which was developed at the Georgia Coastal Plain Experiment Station. The new grass has become extremely popular in the rapidly expanding grassland agriculture of the Southeast.

To make the best possible distribution of planting stock, District Conservationist R. B. Stamey reports, grass diggings have been arranged at various locations within the districts in his work group. As many as three separate diggings have been held in widely separated communities on the same day.



"Holiday" group learns what determines a range site.

"RANCHER'S HOLIDAY".—The cooperators of the Muskogee County Soil Conservation District in northeastern Oklahoma recently held their second annual "Rancher's Holiday."

This year the holiday was spent studying grasses and range sites on the John L. Black ranch near Warner. Black showed the visitors the results of spraying persimmons in a 546-acre native pasture with 2-4-5-T in May and June 1951. Though some trees had leafed out and new sprouts were showing, Black appeared to have an 85-percent kill. He explained that he was trying to control rather than eradicate the brush. He planned to respray the persimmons.

Black emphasized that with proper management, deteriorated range in the hill country of northeastern Oklahoma can be brought back to excellent condition. He pointed to his 100-percent calf crop this year as proof of the value of conservation range management.

Charles A. Evans, area conservationist; Lloyd Gholson, work unit conservationist; Roy Croft, soil scientist; and Neal Stidham, range conservationist of the Soil Conservation Service, showed the visitors how to determine range sites and condition classes, how to identify the important grasses, and discussed the management of native grasses.

R. C. Borum, chairman of the board of supervisors of the Muskogee County Soil Conservation District, announced that "Rancher's Holiday" would be an annual event sponsored by the district.

—MAURICE GAMBLE.

DISTRICT HOST TO ASSOCIATION.—A number of ranches in the Tehachapi Soil Conservation District were inspected by 30 experts on the occasion of the annual meeting of the International Crop Improvement Association at Davis, Calif. The September convention was the first time the organization has met in the United States west of the Mississippi River.

Among those who toured the district were men from Canada, Wales, and 10 States of this country. The following institutions were represented: the Alberta Department of Agriculture, Canada; the Department of Agriculture, Toronto, Canada; the University of Wales; the Bureau of Plant Industry, Soils & Agricultural Engineering, Beltsville, Md.; the Minnesota Experiment Station, St. Paul, Minn.; the University of Maryland, College Park, Md.; the University of Nebraska, Lincoln; the Utah State Agricultural College, Logan, Utah; Cornell University, Ithaca, N. Y.;

and the United States Cotton Field Station, Shafter, Calif.

A number of fields devoted to the production of certified seed, such as ranger and Atlantic alfalfa, were visited. Many of the members were interested in seeing Akaroa orchardgrass and Goars tall fescue. Established conservation measures were observed and discussed. These included contour grade plantings, proper water application, and land leveling.

ROY E. BALLARD

IRRIGATED LANDS INCREASE IN MONTANA.

The total land brought under irrigation in Montana to date through conservation plans is 79,330 acres. A little less than a third is land where the needed alterations in existing irrigation systems made it possible to irrigate more land with the available water. The other new irrigated land is where both the water supply and the irrigation system had to be developed. Land on which irrigation systems have been redesigned and improved is nearly 131,600 acres.

Over 11,500 acres of the new irrigated land were added during the past fiscal year.



Five young men from Thailand.

The five young men seen above in a peach orchard near Spartanburg, S. C., are from Bangkok, Thailand, but they are also honorary citizens of the State of North Carolina. While they were studying soil conservation methods near Greensboro, N. C., District Conservationist C. R. Lamb introduced them to Gov. W. Kerr Scott. Governor Scott was so impressed with their manners and bearing that he issued official proclamations making each of the young men an "Honorary Citizen" of North Carolina.

The five honorary citizens of the Tar Heel State are, left to right: Laph Tanthasri, Suthep Tingsabhat, Parkit Onvimala, Boonyong Siri-vathana, and Apichai Lamchiaghase.



JANUARY 1953

Soil Conservation

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WELLINGTON BRINK
Editor

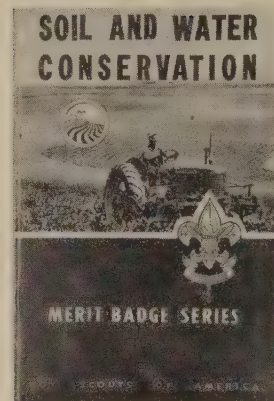
SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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GUIDE FOR YOUNG AND OLD.—If junior is a Boy Scout he should have a copy of the new Merit Badge Manual on Soil and Water Conservation. If he isn't a Scout he should have a copy anyway. The new manual affords an opportunity for nearly 3,000,000 Boy Scouts in America, whether they live in the city or in rural areas, to earn a merit badge in soil and water conservation.

The new booklet is a well-written, easy-to-read treatise on the conservation of soil, water, wildlife, and forestry. We would recommend too, that "Pop" take an evening, relax in his soft chair and review the booklet. He would learn a lot about soil and water conservation that
(Continued on page 131)



FRONT COVER.—Good living is a part of conservation farming. Wesley Harvey hangs about 1,500 buckets in his maple grove in Garrett County, Md., and in a normally good season harvests enough sugar water to make 500 gallons of syrup. Five-gallon gathering pails are used. The late A. F. Hallowell took this photograph.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

WILDLIFE HISTORY and THE SOIL

By DURWARD L. ALLEN

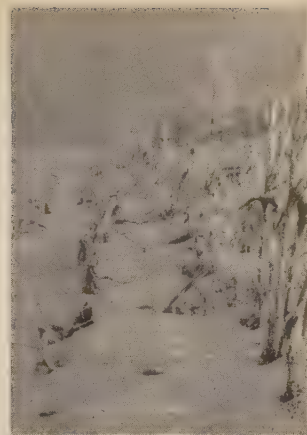
A SATISFACTORY history of American wildlife never has been written. Properly done, it would have to be related closely to what happened to the land, water, and vegetation. Such a history would show that wildlife management works—that changes in a habitat are reflected, practically from year to year, by changes in the numbers and composition of animal populations.

It would deny some misinterpretations that were made because the interpreters lacked sufficient basic knowledge to sort out good observations from poor ones, and jumped to conclusions supported only by superficial logic.

However it may have come about, the idea is widespread that the primitive forest supported more wild game and other creatures than we have had since the coming of the white man. It is assumed also that wildlife abundance was almost universal over pre-Columbian North America. The story is told frequently that as the forests were cut, game birds and mammals were herded together in ever-narrowing coverts where predators and market hunters found them easy to wipe out.

Taking the latter idea first, the biologist knows that there is an annual turn-over of individuals in species of the small-game category which commonly runs 70 to 80 percent, or more. Even among deer the turn-over may be 40 percent. With each year's crop largely being produced anew from a relatively small breeding stock, the herding-together concept does not hold up.

What actually happened to habitats and populations probably can be described best in terms of three principles recognized by the population



Breaking up the forest produced new vegetation types, a new habitat, and a new animal community that we now know as "farm wildlife."

biologist: (1) That wildlife abundance nearly always is the product of fertile soil or water; (2) that many kinds of animals belong to early plant successions; and (3) that most species are benefited by a mixture of vegetation types.

All three principles are illustrated by the past and present status of the bobwhite quail in the northern Lake States. The quail is a "songbird" in Michigan; it has not been hunted for many years. But it does not build up to high densities in spite of the fact that there are plenty of areas with sufficient cover and a reasonably good food supply.

The curious fact is that Michigan quail hunting once was famous. Hard winters might kill the birds back to a remnant, but in a few favorable years they would build up to bountiful numbers again. Why the abundance of "the good old days" is not now duplicated, at least occasionally, has been something of a mystery.

The explanation very likely goes back to the soil, and it can be applied to many similar comparisons involving other species and other areas. Michigan's bumper quail crops seem to have been produced on the best lands of the State at a time when these areas were half-cleared and soils were in the virgin condition. Forest cutting had broken up the woodland and set blocks of vegetation back to early brush and weed stages. These areas were interspersed

Note.—The author is biologist, U. S. Fish and Wildlife Service, Washington, D. C.

with crop fields that yielded abundant food in the form of weed seeds and waste grain. Quail and grouse thrive and filled many a mixed bag in the vicinity of Saginaw and other areas of fertile land in lower Michigan (6).

These same lands now support the State's most intensive agriculture. The fertility and wildlife-producing potential still are there, but the cover pattern, and the birds, are gone. Quail and grouse are creatures of brushy edges, where they have access to several cover types. They differ in that the grouse depends mostly on woodland and the bobwhite is to a greater extent a bird of open fields. Both belong to early stages in a plant-succession series, the end product of which is forest. Put optimum quail cover on a fertile soil and you get maximum populations. Put such conditions on a soil of medium productivity and you have numbers such as are found in many diversified farming areas from Illinois to Maryland. Put them on a poor soil and you have the sparse populations of northern marginal lands and southern piney woods. There are reasons for thinking that, to support a given density of birds, a better soil is needed in the North than in the South. Climate, of course, would make the difference.

In the days of pioneer agriculture there were a few good observers who recognized the significance of what they saw. William B. Mershon said that his early hunting for grouse was too much in the thick woods and that later he learned to hunt the edges (6). In 1848, Frank Forester said of the woodcock and quail: "Neither . . . are ever found in the depths of the untamed forest, aloof from human habitations; although both genera frequent, nay require, woodland . . . for their habitation. Moreover, in places where they are entirely unknown to the first settlers, where they do not in fact exist at all, they speedily become abundant, so soon as the ax levels the umbrageous forest, and the admitted sunbeams awaken or mature the germs of that animal or vegetable life, on which the birds subsist." (1)

This sort of history was not restricted to forest lands. It can be seen also in what happened to the prairie chicken or pinnated grouse. The virgin prairies were covered by a grass "climax" in contrast to conditions in more humid lands of the East where forest was the last stage in plant succession. Chickens do not seem to have been



A planned program for wildlife now will include living fences, hedges and similar measures that have agricultural value and help break up the cover pattern on the farm. (Courtesy Illinois Natural History Survey.)

abundant in much of their original grassland home. But when homesteading brought a scattering of grainfields to the prairies, the broken-up pattern produced a spreading-out and a boom in prairie grouse. Missouri chickens and Michigan quail were enjoying their heyday also.

At one stage, the most fertile prairies of Missouri undoubtedly supported the greatest abundance of prairie chickens. Today such lands support none at all. Long since, the prairie sod was turned into the deep loam and now the land is working hard in a grain agriculture. The change is complete from pure grassland to a crop-field type. Farm lands of medium fertility are partly in grass, and there is where the greatest numbers of pinnated grouse are found today. There is even more grass in the poorest prairie land, but chickens are few, obviously limited by the native fertility of such areas (2). The total number of these birds is small and the outlook for the species is not bright.

Fertility relationships of various animals are widely evident. Productive soils yield both more and better animals. Just how it comes about is not completely known, but there can be no doubt of it. This situation has been most intensively studied in Missouri. There January weights on more than 175,000 rabbits were correlated with soil regions from which the animals came. It was found that rabbits from better soils of the State were a third heavier than those from soils classed as "poor." Leg bones of the more thrifty rabbits were up to 12 percent larger and had a breaking strength 37 percent higher. Similar relationships were found in racoons and muskrats (3).

Striking correlation was found in Missouri turkeys. A single soil type, Clarksville stony loam, supports approximately 79 percent of the wild turkeys of the State. It is a limestone-derived soil of the Ozark Plateau. In eastern Ozarks, the land looks much the same, but the soil is derived from granite, and turkeys are few. Inherent fertility seems to be the greatest difference between the two areas (5).

Early explorers of North America had good reason to be impressed with the high productivity of some regions and the wildlife scarcity of others. The buffalo millions of the central grasslands were the greatest big-game resource of historic times. They were nurtured by the mineral-laden forage that grew on the most fertile soils of this continent.

In contrast, there were "badlands" and barrens in the West where game was nearly absent

and the traveler frequently had to kill his horses in order to live. Likewise, north of the eastern Great Lakes, winter starvation was almost the *status quo* for various Algonquin tribes who hunted a region of shallow soils and igneous rock that supported little game. Southward, in New York and Southern Ontario the Iroquois and Hurons lived by a maize agriculture (8). There, better soils and a milder climate produced good game populations in spots, and they would have yielded more except for the mature forest that largely covered the land. Darrow described the condition in terms of deer populations:

"When Henry Hudson sailed his Half Moon up the river which now bears his name, deer were most numerous in the fertile lowlands of the State, such as the valleys of the Hudson, Mohawk, Delaware, Susquehanna, and Allegheny, and in the Erie-Ontario-St. Lawrence



The fox squirrel now provides hunting in lake states woodlots where formerly an unbroken forest supported abundant gray squirrels.

The cottontail and bobwhite are other species that needed openings and brush stages of vegetation. They now are found over a much larger range than in primitive times.



Plain. Elsewhere in the extensive stands of 'big timber' they were less plentiful." (4).

This was a common condition in forested parts of the country. A taxidermist in northern Minnesota recorded his observations in the Ponsford region. He remarked that deer spread northward in the State with the advance of civilization (and forest cutting). "In fact, our big thick timber with its lack of underbrush to serve as food supply and protection, would not have been a congenial habitat for the deer." (7).

As this amateur observer knew, an all-age forest is most favorable to deer (as to most other game), and these animals frequently build up rapidly in brushy cut-overs and burns. Because such conditions are widespread, we probably have more deer in North America today than the continent ever supported before arrival of the Nina, Pinta, and Santa Maria.

It is evident that the historical overhauling of wildlife habitat brought about a corresponding revision of the fauna. One of the few animals that had inhabited uniform stands of deep woodland was the gray squirrel. When woods gave way to fields, this animal disappeared. But fox squirrels had lived on the prairie edges and these spread eastward occupying the farm wood lots (a similar "edge" situation) of a large, new range.

In the same way, the gray fox was replaced in many areas by the red fox. The raven retreated with the forest and the crow moved in. The cottontail, woodchuck, badger, striped ground squirrel, and prairie deer mouse invaded new range as it was prepared for them. Of course, such wilderness animals as the elk, bear, beaver, panther, wolf, bobcat, and turkey could not last. They faded with their habitat.

Sometimes we lose sight of the fact that the new environment was productive also. It came to support the species fitted for using it. Now prominent among such adapted species is the pheasant, which was introduced from Asia. It is found almost exclusively on agricultural lands, and no other game animal is more closely associated with fertile soils and the raising of grain—corn, wheat, rice, sorghum, or soybeans.

The new wildlife communities that developed were complete with herbivore components. They reached the kind of self-adjusting and fluctuating "balance" of species that is evident everywhere in animal populations. This was neces-

sarily so, because a wildlife community cannot exist in any other condition.

So forest wildlife was replaced by "farm wildlife." A vast management program that no one planned brought it about. Results of our recent efforts to study, plan, and improve habitats for the benefit of useful mammals and birds are difficult to see because they are on a small scale and our techniques for "seeing" are crude. Also, sometimes in our ignorance we are trying to cure something that isn't wrong!

Nevertheless, a look at the record is reassuring, in that it certifies the effectiveness of *real* habitat improvement and *the importance of building up and maintaining land fertility*. The prime necessity now is to recognize the usefulness of wildlife and give it consideration as a byproduct of farming. As one point of departure, we can well afford to allow brushy cover to grow in "odd corners" where it is not in the way of agricultural operations. That is the easiest and most practical kind of wildlife management.

We are developing other techniques of improving "edge" conditions on the farm by means of such devices as hedges, windbreaks, living fences, and field borders. In some land types these can help break up the solid pattern of open fields, and work thus far indicates that they can have "practical" uses in the farmer's business of making a living.

We have only begun to work with such things. It would be a departure from human experience if we did not make mistakes and follow blind alleys at times. But there is no doubt that the approach is correct—if we can find the means to work on it.

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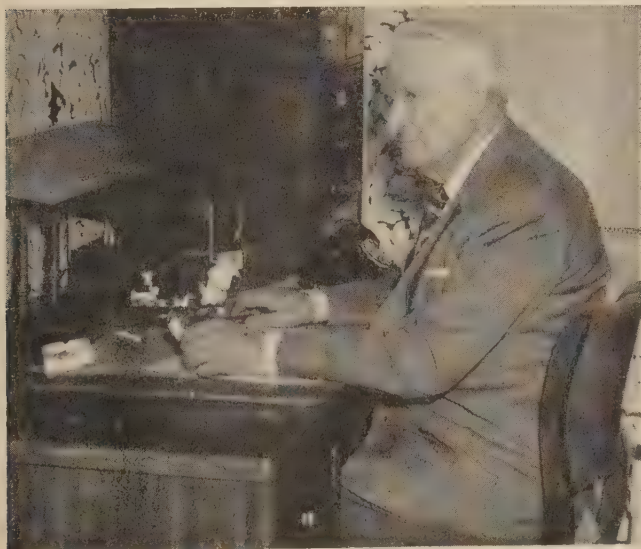
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DISTRICT PROFILE

HON.
CHARLES J. WARNER
of
NEBRASKA

An inscription over the portals of the Nebraska State Capitol at Lincoln reads: "Honor the pioneers who broke the sod that men who come might live."

Charles J. Warner, 77-year-old Lieutenant Governor, who has a farm 4 miles northeast of Lincoln and is a member of the Lancaster County Soil Conservation District board of supervisors, would like to add another: "Honor



Lt. Gov. Charles J. Warner in his office at home. He is a member of the board of supervisors of the Lancaster Soil Conservation District, and has a soil and water conservation plan fully applied on his land.



Always a supporter of the University of Nebraska College of Agriculture, the State experiment station, and the extension service, the Lieutenant Governor also has given much encouragement to the education of youth. Here he inspects a grass waterway near Waverly on the 4-H Club conservation project of Melvin Peterson (left) and Edwin Peterson (right). Club Leader Paul Nordstrom is second from left.

the men who saved their soil that men who follow might live."

"We have to save the soil we still have, and build up its fertility as much as we can," Warner says. "We have to do this to stay in business as well as to provide a place where future generations can earn a living."

It is with considerable pride that he realizes, as he plans soon to turn active management of his farm over to his two sons, that the land is in better condition and more productive than when he got it—that it is the beneficiary of a complete soil and water conservation plan.

Although he is modest about it, Warner has been responsible not only for the conservation plan on his own farm, but also has had much to do with making it possible for all the farmers and ranchers in Nebraska to get similar advantages. He was speaker of the unicameral legislature when the State Soil Conservation Districts Act was brought up.

"You might say that the bill didn't have a friend when it was introduced," Warner explains. "The idea was new. After they read the bill, a good many senators found things in it that they didn't like. Well, the bill was rewritten and passed. Most of the senators didn't think it would amount to much anyway. But it did. Soil conservation districts cover all parts of the State now, and I believe everyone likes them."

He soft-pedals his part in pulling the act out of the fire, but his associates say that his was the guiding hand in the revision of the proposed measure so that it would be enacted. He started cooperation with the Lancaster County Soil Conservation District immediately after it was organized in 1941—the twenty-sixth in the State—and got the aid of SCS technicians in developing his own plan.

Nebraska became a State only 7 years before Warner was born a few miles from his present home. He has been actively identified with the State's progress for a long time. He was elected representative to the legislature at 24, after graduation from the University of Nebraska Agricultural College.

He served 6 years in the legislature when Nebraska had both a House of Representatives and a Senate. He was out of the legislature for 14 years, then returned for an 18-year stint as State senator in the two-house legislature. He was speaker of the first unicameral legislature. Now he is nearing the end of his second term as Lieutenant Governor.

Throughout the years, he continued to farm and assembled the unit he still actively manages with the aid of his sons. He also has been a bulwark of support to the agricultural college and experiment station. At 40 he married. His elder son, Charles, has been associated with him for several years. Another son, Jerome, graduated from the University of Nebraska this year and has joined the farming enterprise.

Warner's farm totals, 1,540 acres. Five hundred bottom-land acres along Salt Creek are used for permanent pasture. Because of its susceptibility to frequent flooding, this land is not suited for cultivation. The rest of the farm is upland, terraced and farmed on the contour. Waterways are all well established. From 300 to 500 acres of the upland are in grass and legumes at all times as part of the crop rotation, feeding livestock and improving soil structure at the same time.

Wheat is the only crop that is marketed. The corn, other grain, and grass go to feed livestock. His herd of registered Herefords is widely known and few of the 145 calves produced each year go to the livestock markets. Nearly all are sold to other farmers for replacements and herd improvement.

"Why did I start on the conservation plan?"

Warner repeated the question. "Really, for two reasons. I could see ditches developing on those slopes. Furthermore, I've always made it a practice to try what the fellows in the Department of Agriculture and at the agricultural college suggest. I've always figured that those men are studying ways to help improve farming, and when they make a suggestion it's worth a trial. Most of the time, the things they suggest work out, too."

He explained that the slopes on the upland part of the farm are long, and with rows up and down hill the runoff water got a good head. That, he said, meant the loss of a lot of soil. Previously, it had seemed that replanting some of the crops was necessary almost every year because of wash-outs. No replanting has been needed since the conservation plan was put on the land.

More water is conserved than most people realize, he observes. As an example of the amount of moisture that is in the soil now, he told of the small side draws on the farm that have springs flowing. There used to be springs in those draws, he said, but they dried up and remained dry for 40 years until this year.

A great change has come over Lancaster County during Warner's lifetime. He remembers that there were few gullies when he was a young man. The land had not been farmed long enough after breaking the sod for erosion to show up much. Besides, much land now cultivated was then still in grass. As the years passed, more and more gullies appeared and the topsoil began to get thin. He told of a number of farms that had declined a great deal in productivity.

"I recall particularly the rather recent experience of one friend of mine," Warner said. "His farm had come from his grandfather to his father and then to him. He lives in town and rents out the farm. It is a place that supported two generations prosperously.

"One day this friend complained that he had a poor renter, and the farm was returning barely enough to pay taxes. I went along with him and an SCS technician to look the place over. He found that it wasn't the renter's fault at all. The topsoil was gone from the fields. They were down to the glacial clay.

"He was told that the land needed terraces and waterways, but that the terraces wouldn't

be enough in themselves. Instead, the land would have to be put into alfalfa and brome-grass for a few years, then cropped a couple of years, and put back into brome-grass and alfalfa again. Such a rotation, together with fertilizer, will be needed for a long time.

"The income from the farm had declined as the topsoil disappeared. Former generations took the cream and the present generation got the skim milk."

More than one farm in Lancaster County is like that, he continued, but added that generally speaking the situation would not be too bad if all of the landowners and operators were to get busy on soil and water conservation. Many are already well along on their conservation plans but others are still dragging their feet. That the land can be saved and made more productive for both present and future generations is their leader's firm conviction.

"There's no question but that conservation of the soil, good crop rotations, and the use of fertilizer will increase the productivity of our farms," he concluded. "I know that we are now losing little, if any, soil, in spite of hard rains. I know that our soil is getting more mellow and that our crop yields are up by over 25 percent. I've been told by others that they have had the same experience. But you must start with conserving the soil, for if the soil washes away the fertility goes too."

That is the reason Lieutenant Governor Charles J. Warner would add another inscription on the State Capitol at Lincoln in honor of both those farsighted early-day farmers who conserved topsoil and the thousands who are now gradually overcoming the effects of uncontrolled erosion: "Honor the men who save the soil so that men who follow may live."

—A. E. McClymonds

REPORT ON SEVENTH ANNUAL SESSIONS OF SOCIETY

By A. M. HEDGE

THE seventh annual meeting of the Soil Conservation Society of America was generally acknowledged to be the best yet held.

The papers were interesting, and the speakers effective. Outstanding was the emphasis placed by most speakers on the objectives of soil conservation in terms of better living conditions for farm families, rural communities, and urban areas. At the opening session President Morris Fonda set the stage for such a theme. He was immediately followed by J. S. Russell, farm editor of the *Des Moines Register and Tribune*, who drew on his experience as a farm editor, as well as on the opportunities he has had to observe world conditions under the auspices of the United Nations.

The Thursday afternoon session, presided over by Dr. Robert M. Salter, Chief of the Soil

Conservation Service, brought out some excellent papers on technical matters. Dr. M. B. Russell, head of the agronomy department of the University of Illinois, gave a thoughtful and informative address on new developments in cropping practices. The discussion of physical improvement in soil through the use of soil additives to improve structure, by Dr. R. W. Pearson, senior soil scientist, Bureau of Plant Industry, located at the Alabama Agricultural Experiment Station, brought out some differences of opinion as to the practicability and usefulness of these new chemicals. It was generally agreed that much additional research will be needed to bring the cost of such materials within the realm of practicability for general use in agriculture. Dr. Emil Truog, professor of soil fertility, University of Wisconsin, did his usual fine job of laying low certain widely accepted misconceptions about soil-fertility improvement. He liberally illustrated his talk with examples of potential improvements that can

Note.—The author is chief of project plans division, Soil Conservation Service, Washington, D. C.

be made with proper attention to the needs of the soil.

Friday morning Phil H. Noland, vice president of the Minneapolis-Moline Co., talked about conservation and the work of the farm-equipment industry, as related to their dealers and the soil conservation districts. Clifford E. Cairns, director of the livestock service division of Wilson and Co. at Albert Lea, Minn., offered many helpful ideas for making full use of grasses in livestock production. Durward Allen, assistant chief, branch of wildlife research, Fish and Wildlife Service, Washington, D. C., received well-deserved acclaim for his practical and common-sense suggestions regarding wildlife and the business of farming. At the end of his talk, the society passed a resolution stating that Dr. Allen had presented the best paper on wildlife and farming they had ever heard. Sherman E. Johnson, assistant chief, Bureau of Agricultural Economics, Washington, effectively summarized the farm-management problems involved in soil conservation and suggested that additional attention ought to be given to this phase of conservation planning.

What proved to be the highlight of the entire meeting for many of the delegates was a panel discussion, "Getting Conservation on the Land," by representatives of the Allegany County (N.Y.) Soil Conservation District. Included in the panel was the man who had been county agent in Allegany County when the organization of the district was first initiated, as well as a vo-ag teacher who took a prominent part in that activity. Also participating were a farmer representing PMA, the cashier of the First National Bank of Whitesville (who is also a district supervisor and farmer), the chairman of the Allegany County Soil Conservation District, and the district conservationist. The panel was led by Hugh M. Wilson, extension soil conservationist at Cornell University, who had himself played an important role in organizing the district.

This panel brought out in chronological order the educational steps that were taken which led up to the organization of the district, and then traced the 10-year development of the district. Here there are now about 1,600 co-operators, and their accomplishments are even more impressive when it is recognized that Allegany County is one of hilly terrain and low

fertility. It was revealed that before the district began operation there were many abandoned farms, and others that were tax delinquent. At present abandoned farms and tax delinquency have virtually disappeared. Land values have increased, as has production per acre. It was made clear that such results were achieved only through the enthusiastic and co-operative efforts of all agencies and groups in the county that were in a position to work together on the total conservation job, including education, technical assistance, and financial assistance. Harold Bloss, the banker, stated that the bankers of the county did not turn down any reasonable application for a loan for conservation purposes. Lynn L. Watson, representing PMA in the county, indicated that payments available to farmers had been consistently directed toward helping people carry out the conservation practices planned in connection with the district program.

Hugh Chamberlain, district chairman, pointed out that in the Allegany area there were no private equipment contractors operating, although the terrain requires a considerable amount of earth-moving to install a satisfactory conservation program. Thus, the lack of equipment became a chief difficulty. To solve this problem, the district over the years gradually has acquired heavy earth-moving equipment worth more than \$100,000. This district is currently in debt only \$1,400, which is budgeted to be paid off this year. The panel set forth the fact that new business derived from conservation operations amounts to approximately \$500,000 per year to people of the county who are dealing with farmers.

These results have become apparent in terms of better buildings, more and better livestock, and a more general prosperity in the county.

The banquet on Friday evening had the benefit of a barber-shop quartet to put the crowd in a merry mood for what followed. The main address by Dr. Raymond Miller, consultant, FAO of United Nations, dealt with international aspects of land use.

A new feature was added to the program Saturday morning when the chairmen of the various technical committees under the leadership of E. H. Graham, assistant chief of the Soil Conservation Service, presented brief resumés of the work of the committees and outlined

future courses of action. The interest displayed in reports by delegates indicated that this is an activity which the society can afford to broaden and strengthen in future years.

Rt. Rev. Msgr. L. G. Ligutti, executive director of the National Catholic Rural Life Conference, delivered an inspiring address intended to emphasize the importance of conservationists recognizing the end product of their work in terms of its effect on family living, community life, and problems of State, national, and international human relations.

Miss Florence Reynolds, representing Food and Agriculture, United Nations, followed with an interesting talk on the work of her organization and its relation to soil conservation. She drew on the statements of previous speakers to show the effect of conservation on people and

the concrete work of FAO. She also made a strong plea for active participation in FAO by scientists and technicians who are equipped to help people of other countries to help themselves on food production and the stabilization of their agricultural economies.

Many of the delegates brought their wives to the convention and the local arrangements committee provided tours for them each afternoon. Next year's meeting—the eighth—will be held at Colorado Springs. Advanced preparations already are being made, and a record number of participants is expected.

YOUNGSTERS COMPETE.—Thirty \$300 college scholarships are offered to boys and girls as awards for top-rating achievement records in four National 4-H programs being conducted by 47 States this year.

The programs, number of scholarship awards in each, and donors are: Field Crops and Frozen Foods, 6 each, International Harvester; Poultry, 10, Dearborn Motors; and Soil and Water Conservation, 8, Firestone.

State winners in Field Crops and Poultry each will receive an all-expense trip to the National 4-H Club Congress in Chicago next November. Each State champion in Frozen Foods and Soil and Water Conservation will be presented a 17-jewel wrist watch; 8 sectional winners in the former program and 16 in the latter will be given a trip to the Chicago Club Congress. County winners will get medals.

OFFICERS ELECTED

H. H. Bennett, president
R. Y. Bailey, first vice president
P. H. Noland, second vice president
J. S. Russell, treasurer
H. Wayne Pritchard, secretary

Council Members

Roy D. Hockensmith
Fred A. Wirt

Best Articles of the Year in

Journal of Soil and Water Conservation

First, Soil, the Substance of Things Hoped For
Firman E. Bear
Second, Soil Management, Soil Sense, and Soil Conservation
C. L. W. Swanson
Third, Planning the Watershed
Carl B. Brown

Fellows Elected

Walter Gumbel
Fred A. Wirt
Fred J. Sykes
Edward N. Munns
Alvin C. Watson
Arthur B. Beaumont
Edward H. Graham
Austin L. Patrick
Arthur C. McIntyre
John Lamb, Jr.

Honorary Members Elected

Waters S. Davis
Walter R. Humphrey
Walter R. O'Neal
A. G. Brown
J. E. Noll

GUIDE FOR YOUNG AND OLD

(Continued from Page 122)

he probably doesn't know. He might even become a Scoutmaster some day.

This manual will no doubt help the coming generation to become aware of the danger of our dwindling land resources. The manual points out that everyone, young and old alike, has a stake in our land resources; and that each of us has a responsibility in the preservation of these resources. The booklet is profusely illustrated with snappy photographs on all phases of soil and water conservation.

It is unfortunate that all of us older people did not have such a guide, with proper leadership, a quarter or half a century ago. No doubt our conservation problems would have been more nearly solved.

The manual was written by Bernard Roth, Soil Conservation Service, Upper Darby, Pa., with the help of Bert D. Robinson, National Merit Badge Counselor in Soil and Water Conservation, of the SCS, in Washington. The booklet may be obtained from Boy Scouts of America, 2 Park Avenue, New York. The price is 25 cents per copy.

YOUNG FARMERS' DAY

By PHOEBE O'N. HARRISON

A FIELD day with a wholly new inspirational appeal was put on in the Charles County Soil Conservation District in southern Maryland last October 8. It was a young people's affair from first to last. Nobody over 30 was allowed on the planning or working teams. The minimum age limit was 14. Speed and precision were the order of the day, which was a brisk day of softly clouded sunlight against the richly

(Continued on page 134)

THE PICTURES

1. Eight acres were prepared for new pasture: disked, limed, fertilized, seeded with mixture of orchard grass, Ladino clover, alsike clover, red clover.
2. Farm buildings were renovated. This is work on tobacco barn.
3. Lime was spread on renovated old pastures, at rate of 500 pounds per acre.
4. Adult committee: W. R. Tascher, extension soil conservationist, Washington, D. C.; A. L. Jones, Sears Roebuck Foundation, sponsor; Walter Bender, general chairman; Charles Ellington, extension soil conservationist, University of Maryland.
5. Youth committee: girls—Mrs. Howard Cooksey, Mrs. William Albrittain, Mrs. Harold Hancock, Shirley Porter, general secretary; Mrs. John Sullivan. Boys—Howard Cooksey, Kenneth Berry, Walter Bowling, Jr., William Boggs, Walter Bender, general chairman; William Hardesty, Carl Baldus, John Thompson, James Rollins.
6. Robert Radcliff operates State Road Commission bulldozer clearing brush in preparation for seeding new pasture.
7. A 400-yard tobacco bed was prepared with cyanamid and methyl bromide.
8. A 4-strand barbed wire fence was built around a pasture.
9. The young workers lined up for their lunch boxes, which were readied by the Methodist Church Guild of Charlotte Hall.





colored October woods all around the scene. And, of course there was dust, that pale tobacco land dust that is the very essence of the country where the fine cigarette weed grows.

At this field day there were no speeches. There wasn't even much talking. Except for the busy roar of the many great machines it was the quietest conservation field day recorded up to this time. There was only work, and speed, and a peculiar intentness on getting a soil conservation plan laid out, right on the farm where it belonged. There were flying young figures and slick machinery all over the place, but there still was that impression of quiet and a difficult job that could better be done without fuss or horseplay.

The Young Farmers' Conservation Day was announced for 10 o'clock, and it did begin at 10. Every worker was in place. All machines were in place, manned by slim young chaps who loved those machines and handled them with the unaffected nonchalance of skilled Arabian horsemen atop their beloved steeds. Almost instantly the great tractors and small tractors with their powerfully efficient attachments were in action. Lime spreaders were piling on the white dust, and weary old fields, tobaccoed almost to death, were being made over at the hands of youth. There was a lot of pasture making at this Young Farmers' Conservation Day!

It all began some time ago, when young adults in various parts of the country began asking what *they* could do for soil and water conservation. They wanted something they could do on their own, without baldhead supervision. There were all kinds of programs for children, for established older farmers, and even for industrial and civic groups who put on tremendous shows with thousands looking on; but young adults just getting started or still in the learning stage were being left out.

The Sears Foundation people heard about the young farmers who wondered what *they* could do, and a plan was cooked up. The Sears people realized early that this was a project worth sponsoring and encouraging. Three counties, one in Colorado, one in Nebraska, and one in Maryland were selected as test counties—to learn what young farmers *wanted* to do and *could* do. In the old tobacco county of southern

Maryland we saw the third and last of these tests on that colorful October day.

A. L. Jones, representative of the Sears Foundation, was there as an unobtrusive observer, and he seemed as pleased as Punch to learn that this particular group of young farmers knew what they wanted to do and could do it—and that, to them, helping soil and water conservation meant getting out on the land and throwing all their weight into a complete conservation plan in 8 hours of October daylight.

The young farmers not only did all the work at this field day, but they planned it themselves and promoted it. They met time after time, to decide what they wanted to make of their own field day. They appointed their committees, with Walter Bender, just getting started at farming and happy and forceful about it, as a kind of superchairman of them all. They had their own publicity and public-relations committees, a budget committee and a recreation committee, as well as those essential committees whose special duty it was to arrange the work to be done on the farm land and in the farm home.

They enlisted the assistance and advice of the county agent, P. D. Brown, and the SCS men working in the district. W. Mitchell Digges, district conservationist, ended up by being chairman of the General Advisory Group; and Anna Wills, home-demonstration agent, worked with fervor to help the young wives and sisters with the home remodeling and decorating job.

Out of some 50 farms, the group chose a young farmer's 100 acres for their field day. It was the farm of Mr. and Mrs. Howard Cooksey and their two little children. It was eroded and worn and production was low, but the Cookseys were trying mightily to make a go of it. That, however, was not the primary reason that it was finally selected. The conservation plan for the farm showed that only drastic changes in land use and farming practices would revive that land, tobaccoed since colonial days and suffering from gullying and sheet erosion, as well as that "soil anemia," so common and heartbreaking in many parts of our Atlantic Coast States. The young farmers saw in Cooksey's farm plan a chance to demonstrate many practices, to get the feel of those practices combined into one soil and water conservation system, and to show that youth could

do this thing on the land as well as older and more experienced people.

Machines fairly flying, they took 8 acres of that old tobacco land and made a new pasture. Soil tests showed need for 2 tons of lime and 500 pounds of 5-10-10 fertilizer per acre; and that is what went into that new pasture, along with 8 pounds of orchardgrass seed, 1 pound of Ladino clovers, 2 pounds of alsike clover, and 2 pounds of red clover. The pasture needed a fence, and a four-strand barbed wire was quickly built by modern conservation "magic" and a powerful post-hole digger.

They renovated an old ailing pasture with lime and 5-10-10, 8 pounds tall fescue, 1 pound of Ladino and 2 pounds of red clover to the acre. And they top-dressed another pasture which Howard Cooksey had established in 1952, using 1½ tons of ground burned lime and 500 pounds of 0-14-14 fertilizer to the acre. You could almost see the tired old soil picking up, taking on new life, as the top dressing went on in clouds of white dust obscuring the autumn foliage.

There was a tremendous gully at the far end of the farm, calling for an 800-foot diversion and outlet, a bulldozer, and a seed mixture composed of blue grass, red top, White Dutch clover, rye grass and a ton of lime and 300 pounds of 5-10-10. Half a dozen busy young conservation enthusiasts performed this operation almost without onlookers, as it was far away and difficult of access. But they were ridding the world of one great gnawing gully, and that was that.

Six acres retained for tobacco by the Cookseys was planted to a cover crop, on the contour. Wheat was used for this, and 300 pounds of 3-12-6 fertilizer. At the same time, half of the 400-yard tobacco bed was treated with cyanamid, and the other half with methyl bromide. This being a hand job, it took some hours to prepare the soil, lay the tubing, and cover properly for effectiveness.

While watching this operation and trying to learn the why and how of preparing a tobacco bed, a rake turned up at my feet a large and heavy fossil. It is a Miocene Pectinacea whose opening mechanism never worked, so that it died smothered by sediment and was gradually fossilized as a solid piece throughout the ages! At any rate, it was deposited there on that

tobacco farm eons before the early white settlers were told that they would be "banished men" if they did not ship cargoes to the value of two thousand British pounds sterling to England their first year. I wanted that fossil. I asked if I might have it. I was told that it belonged to no one. It now rests peacefully on a shelf between a whale's tooth and a chunk of coral from Trinidad—in another Maryland county.

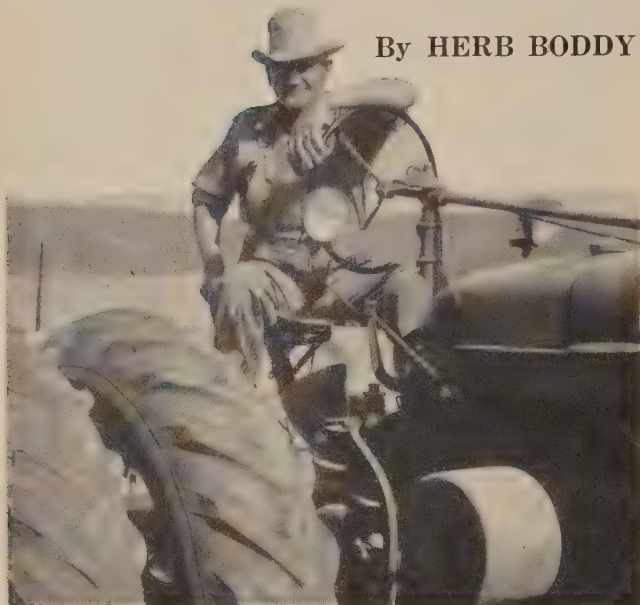
While the field operations were in progress, some other more tedious jobs were tackled and completed with the peculiar dash of youth in action when they know what to do and how to do it. In the house, the girls were painting the kitchen, arranging new cabinets for Mrs. Cooksey's convenience and better living, and the homestead roof was getting its first coat of paint. Landscapers were planting a large Japanese chestnut tree for shade for the children's summer play, with privets and other shrubs and even an iris border. And, for a time, some 4-H Club girls were busy with two demonstrations—frozen food and ironing.

A big tobacco barn, filled with the great brown leaves drying, was for a time the center of interest. Old rotted siding was pulled off and replaced with new boards, and paint brushes were flying on the roof of the shed. A new door was made on the spot and hung in place. And, during the brief lunch hour, the lunch boxes packed and donated by ladies of the Methodist Church were distributed, chuck-wagon style, from the floor of the big truck backed up against this tobacco barn. During this period, when yellow-capped workers came hurtling from every direction, the music provided by the Charlotte Hall Military Academy Band floated across the fields to the big bulldozer at work on the farm road.

This band music, and the dance at the Episcopal Hall that night from 9 to 12 midnight, for the young workers only, was the only "recreation" connected with this Young Farmers' Conservation Day. They put a conservation farm plan on a farm, and that was what they set out to do. The significant thing is that this group of young people demonstrated, without any doubt, that in their opinion they can best contribute to soil and water conservation by getting out on the land and doing the job that needs to be done to improve the land itself.

COLUMBIA BASIN RESPONDS TO IRRIGATION

By HERB BODDY



Tom Clark last summer seeded an irrigated pasture on very light textured soil. He talks and practices good land use.

GOOD land use is very much in the minds of today's young crop of Columbia Basin settlers.

Already, many newcomers to the Basin are taking a keen interest in their soil conservation district, and are shaping their new farm enterprises from the ground up. They regard it as easier and less costly to take good care of their lands now, than to pay the fiddler later on. For as they farm, so goes the harvest in Washington's new farming empire.

Most settlers are keeping a close eye on their agricultural stake. You won't catch them using piecemeal methods, nor running their place by rule of thumb. If they can't do with assurance a soil or water conservation job, they get a helping hand from the supervisors of their soil conservation district.

There are ample indications that the doctrine of good land use is well ingrained in the hearts

of the farmers of Moses Lake, Quincy, and Ephrata. They are thoroughly committed to such measures as crop rotations, selected pasture mixtures, cover crops, and well laid out irrigation systems. Here in a million-acre, mesa-like area are hundreds of modern farming enterprises in the making.

The cool waters of the Columbia River are the key to the rising fortunes of the settlers. Last summer some 250 farms, covering around 23,000 acres, were raising irrigated crops in the Basin's eight farmer-voted soil conservation districts. And each year it is expected that 750 new farms will receive water for the first time.

Most of the settlers are young war veterans with a yearning for the land. Few are experienced in farming. A good many are recent graduates of State agricultural colleges. But the Basin's young farmers are doing well on their 80-acre homesteads. Their farms are neat and tidy. With the objectives clear, and the instrumentalities at hand, farms are beginning to operate like well-oiled machines. But settlers know they have a long way to go. Putting into production the tinder-dry, sage-covered lands of the Basin counties is not easy. Settlers must know the kind of crops to plant, the soils they are working with, how to care for the land the conservation way, and what to do about irrigation water. They also must learn, sooner or later, what to do with the "dusters."

Many of the problems encountered can be worked out individually. But when tougher problems occur, there is need for the specialized and scientific help available through soil conservation districts.

Members of district governing boards serve without pay and are farmers or ranchers themselves. They have taken the job of furnishing settlers with the right kind of technical help from the Basin staff of the Soil Conservation Service and other agencies. The districts serving farmers are: Quincy, Ephrata, Moses Lake, Othello, Wilson Creek, West Franklin, Moses

Note.—The author is in the current information division, Soil Conservation Service, Portland, Oreg.

Coulee, and Hartline-Highland. All of these are ready to help bridge the gaps in good land-use programs.

In the great, saucer-like area which forms Washington's central plain, there hasn't been much change, other than the coming of Columbia River water, since early Inland Empire farmers moved in their oxen-drawn moldboard plows and started raising dry-land grain and cattle. Winds blow at a good clip. Dusters still ruffle dispositions. It is as heart-rending as ever to try to farm without water.

Of course, not all of the old summer-fallow farmers lived in a "grapes of wrath" setting. There were many lean years. There were also many fat ones. But gains from the new irrigated crops figure to out-strip greatly the best profits

chalked up under dry-land methods.

In the Basin today, dairying and livestock predominate. Settlers like the advantages of irrigated grassland. Water, they know, is the best safeguard against droughts. Land dry as a chip will yet produce bountiful yields of vegetables, grass seed, dairy, and livestock products. What a tossed salad Basin home-makers can make out of the vegetables they grow! But shrewd marketers, who have kept close tab on the Basin boom, say it won't be vegetables, but soil-building hay and pasture crops that will bring prosperity.

Once permanent pastures are established, you don't have to give them the seasonal care required by row crops. Owners of top pastures like August Drittenboss, of the Ephrata district and



Percy Driggs (left) tells Cecil McCormac of this enthusiasm for the lush forage in his new pasture.



The 510 steers grazed on the irrigated pasture of Karl and Doc Goodrich's Moses Lake farm gained an average of 2 pounds per day last summer.

Much land calls for cuts and fills to provide even flow of water. Here technicians check a leveling job in the Moses Lake area.



Mel Stepon sets irrigation spiles to deliver the right amount of water to furrows on new land near Quincy.

Percy Driggs, Karl and Doc Goodrich, Bob Goodwin, and Morgan's Dairy of the Moses Lake district, are justly proud of their lush pastures.

The chance to build a paying pasture is much better now than formerly. New foundation grass and legume seed, produced in nurseries of the Soil Conservation Service and State experiment station, are making forage feeds higher in yield and more healthful for cattle. There is less risk and more gain from using modern fertilizers, too. Higher quality pasture forage results in increased butterfat and meatier cattle. And rotated grazing fields permit cropped areas to rest and come back.

What do settlers like best about grassland farming, aside from yields? Those who own improved pastures contend that it is the sprinklers, the border system, and the improved furrow system. When properly laid out, an irrigation system steps up production, saves time and labor, cuts soil losses. You can set it and forget it.

Ten years ago irrigated pastures were few and far between in Franklin, Grant, Adams, and Douglas Counties. This year the Ephrata headquarters of SCS reports that it has helped with the leveling of some 75 to 100 farms, and on them conservation irrigation systems were laid out. Several of them are watering pastures.

In Grant County, recipient of the first outpouring of Columbia water, the number of farms has jumped from 500 to nearly a thousand in less than 2 years.

Percy Driggs, diversified farmer and head of the board of the Moses Lake Soil Conservation District—oldest in the Basin—puts the settlers case this way:

“One of our big good land-use jobs today is to help settlers put a good part of their farm lands in soil-building hay and pasture crops. It’s important that we farmers set up good

crop-rotation programs and pick the right pasture mixtures. The right kind of crop rotation boosts soil fertility and farm incomes.

“As a rule settlers obtain better results by getting into a rotation at the outset. They will save on their nitrogen bill because much of it is grown during the 5- to 9-year rotation span.”

Driggs, along with the chairmen of other Columbia Basin soil conservation districts (Melvin Stepon, August Drittenboss, A. O. Hampton, and Ray Bailie) hopes to see nearly half of the newly irrigated Basin land in conservation-type pastures by 1956.



Conservationist Caskey and Engineer Baldwin work out scheme for cuts and fills. Parts of 75 to 100 farms were smoothed out in the Basin last year.

BUSINESSMEN-FARMERS.—Toney Ernestes, work unit conservationist in Forsyth County, N. C., thinks other work unit men might be surprised, as he was, if they made a list of the business and professional men in their work units who have district farm plans.

Ernestes checked the records in his work unit and found that the following have district plans: 10 doctors, 4 automobile dealers, 4 ministers, 4 real-estate dealers, 4 tobacco-company directors, 3 contractors, 3 attorneys, 3 printing-company owners, 3 brokers, 3 wholesale grocers, 2 chain-grocery owners, 2 electric executives, 2 paint-store owners, 2 radio-station owners, 2 bank directors, 2 tobacco-warehouse owners, 2 judges, 2 laundry owners, 2 gasoline distributors, 2 wholesale beer distributors, 2 county commissioners, 2 bakery owners, 2 wholesale feed owners, 2 wholesale seed owners, and 1 beauty-salon owner, sheriff, school superintendent, tobacco-company president, restaurant owner, rock-quarry owner, mining engineer, chamber of commerce president, awning manufacturer, Cuban consulate, headache-powder manufacturer, bank president, wholesale florist, hosiery manufacturer, knitting-mill owner, ex-Secretary of Army, college president, battery manufacturer, and newspaper owner.

DYKES' HOBBY REFLECTED IN PRINT.—After a hard day's work, there's nothing so bolstering as an absorbing hobby—and SCS folks are like others in that respect. A good example is the deputy chief of the Service, J. C. Dykes, who is becoming widely known for his collecting of books of western Americana. A bibliophile of no mean stature, his Ranger and dime-novel collections are among the best in the country. His home is adorned with fine Western originals, etchings and prints, in keeping with his interest in the old days of open range, cattle wars, and other marks of frontier life.

From the press of the University of New Mexico recently came Dykes' liberally annotated book, "Billy the Kid, The Bibliography of the Legend," which the University's editors hold "probably could have been written by no one else." This book is regarded as a very valuable addition to the literature of the southwestern phase of the great American tradition.

HIGHWAY USERS, FARMERS, AND TAXPAYERS BENEFIT

By A. E. McCLYMONDS

MOST counties are still maintaining bridges over streams and gullies, where they cross the roads. But not Washington County, Nebr. There the county commissioners are replacing bridges with drop-inlet structures as fast as they can.

"The beauty about those drop inlets," says Clarence Kuhr, "is that once one is in, our troubles with that piece of road are over." Kuhr is county commissioner in charge of road maintenance at Blair, Nebr.

At present the county commissioners are spending \$75,000 to \$100,000 a year on drop inlets. More than 75 major structures have been built already. In addition, small concrete structures have been placed at the heads of culverts where signs of trouble have appeared.

To explain: A drop inlet consists of a riser—an upright pipe or hollow concrete structure—built to the necessary height in a gully at the upstream side of a planned earthen dam, and a nearly level tube of a length necessary to carry the water under the earth fill. The fill is built later on. The earth fill, or dam, and the riser permit filling of the gully on the upper side; the water is let down through the riser and out the other side, through the tube, in safety. The

fill becomes the roadbed and concrete wings are built at the top of the riser to protect the fill from wave erosion.

Progress in the development of drop-inlet structures is the result of close cooperation between the county commissioners, the Papio Soil Conservation District, and the Soil Conservation Service. The commissioners' enthusiasm for them springs from the performance of those that were built in the middle thirties, when soil and water conservation began with the use of a CCC camp and WPA labor. The SCS, supplying the technical services, designed these drops.

Bridge maintenance has always been a man-sized headache in Washington County. Much of the county is steeply rolling and its soil erodes easily. Some of the stream courses and gullies are gashes as deep as 50 feet.

Depth alone does not, however, cause the trouble. The gullies tend to grow wider and to branch at the sides. Bridge approaches are destroyed. Some of the side gullies menace roads leading to the bridges. In at least one instance, a stretch of road had to be shifted to one side to get away from a side gully—and now the side gully is again menacing it.

"The regular procedure has been, first, to lengthen a bridge after the approaches are undermined, and then usually we have had to replace the whole structure the next time work has been needed," Kuhr comments. "It wasn't long before we were faced with the job of building major bridges, and they really cost money."

At the moment, he was standing on an 80-foot bridge that had to be replaced. A drop-inlet structure will be substituted. With him were Soren Jensen of Blair and Bruce Cox of Fort Calhoun, county commissioners; Hjalmer Quist of Blair, chairman of the district supervisors; Simon Korsoj of Blair, road contractor; Roy T. Kirkpatrick, area conservationist; and C. Edmund Anderson, work unit conservationist. The other county commissioners—Albert Sprich and Aaron Hansen of Blair, Mark Cameron of Herman, and Fred Stork of Arlington—were not along.



Looking from drop inlet up grass waterway on farm of Chris Christensen, August 1952. No road maintenance has been needed here since completion of structure.

Note.—The author is regional director, Soil Conservation Service, Lincoln, Nebr.



Where a watershed is not protected, the gully on the upstream side of a drop inlet fills rapidly. Top view was taken in June 1952, just after structure had been completed but before old bridge had been removed and the earth fill built. Lower view was made in August.



Eighty feet was no longer a sufficient span over this creek. The distance to the creek bed from the bridge floor was 34 feet. Jensen remembers the stream as it once was.

"I used to drive over this creek frequently when I was courting Mrs. Jensen years ago," he reminisces. "Only a little bridge was necessary then. But look at it now. Every year, something had to be done. Finally the bridge had to be replaced. This is the fourth bridge to be built here."

When the first drop inlets were installed in 1934 and 1936, as parts of conservation plans, they were primarily for the benefit of the farmers. Each had a huge gully eating its way through his farm. A structure was needed to control it, and the logical place was at the road at the lower edge of the farm.

It took a bit of persuading to get permission to build the first drop inlet at the right place, but permission was granted and the county

cooperated by taking out the bridge and making the earth fill that became the new roadway. Quite a number were built in those early days, when the farmer furnished only the materials and the CCC boys and WPA workers did the work.

After the cessation of the CCC camps and WPA, the construction of drop inlets came to a virtual standstill. The structures that were needed were too expensive for the average farmer, even with the PMA aid that was available.

The county commissioners began to take note of what had happened to the roads where the first drop inlets had been built. About 8 years ago they decided to substitute drop inlets for bridges everywhere except over drainage canals and major streams.

"Those drop inlets proved to be permanent improvements," Kuhr says. "We have not had to spend a dime on them in the 17 or 18 years since they were built, except for routine smoothing of the road surface that you have to do anyway.

The commissioners turned to the soil conservation district, and the board of supervisors—Quist, Clarence King, Pierce Allen, Harry Wrick, and A. H. Sibbersen—agreed to make available the aid of SCS technicians assigned to the district. The supervisors had a dual interest—the benefit to the farmers, and also to the taxpayers.

"At first it took quite a bit of time to lay out the projects and inspect the work," says Anderson, "but now it takes very little. The commissioners have had a lot of experience with the structures during the years. Korsoj has had the county contract for the last few years and is thoroughly familiar with this kind of construction.

"About all we need to do now is to figure the watershed area above a proposed drop inlet, determine the size of tube needed, and set the bench mark that designates the height of the riser. Knowing the size of the watershed, we get the information about the size of drop inlet from tables."

Setting the bench mark is extremely important. This is because no drop inlet should interfere with the functioning of one that is upstream from it—and there often are several road crossings on a stream.

He pointed to one example where the bench mark was set at 20 feet above the stream bottom. There was room for a 22-foot riser, but at that height it would be higher than the bottom of the tube in the structure upstream.

The commissioners of necessity have to operate solely on the basis of needs for the protection of the county roads. Thus, they determine priority without consideration of benefits to individual farmers, or whether conservation has been applied to the watershed. In fact, they like to build for an unprotected watershed, figuring that the application of conservation to the land affords an added safety factor. Every one of the county commissioners is a real booster for conservation farming.

Of course, heavy silting occurs from land that is not conservation farmed. It first fills the gully space on the upstream side of the drop inlet. After that, the flowing water carries silt, as it did before, but it is no longer able to do any gully cutting above the structure.

Farmers are benefiting materially. The experiences of Chris Christensen, near Kennard, and Albert Orht, near Blair, are typical. The drop inlet at the Christensen place was built in 1934, and the one at the Orht place a year later.

"You bet that drop inlet helped me," Christensen said. "There was a big gully eating up that draw. It would have gone clear to the top of the hill. It had already taken about 8 acres out of production.

"Well, in a few years the gully filled with silt to the top of the riser. Now I've got the whole field terraced and contour-farmed, and there's a nice grassed waterway where the gully was. There's been no more gully washing."

Water reached the top of the road only once after the drop inlet was built, but it did no damage, he says. That was when a terrifically heavy rain fell before he had the land terraced. Conservation farming, with terraces and contour tillage, grassed waterways, and grass in the crop rotation, Christensen adds, has reduced the flow of water a great deal.

Orht's experience is similar, except that he has his grassed waterway at another place and grows crops where the gully was.

"There's no more tearing up of the land by the water as it goes over the formerly gullied

place," he says. "The drop inlet keeps it from cutting, yet it drains off rapidly enough not to hurt the crops. I farm right through the place where the gully was.

"The fellow on the land below mine has put a structure where our stream empties into the main creek. Now the water from both farms flows over a gentle grade and cannot cut down into the land any more."

Generally, constructing a drop inlet costs considerably less than replacement of a bridge. On the spot, at the 80-foot bridge scheduled for replacement in the autumn of 1952, Korsoj figured the cost of the structure at \$12,000. The county commissioners estimated \$4,000 or \$5,000 for the fill. This makes a total of \$16,000. Their experience has been that putting in a new bridge of the required size would run in excess of \$20,000. Experience also has shown that it would not be permanent.

How much effect has this program had on country road expenditures? Kuhr puts it this way:

"We are spending as much money as before, because we are building drop inlets as fast as we can, and still have some 300 bridges that must be maintained until we can replace them with drop inlets.

"But every time we build a drop inlet, it's a permanent improvement and the road will thereafter be safe. That means no more expensive repair and replacement costs.

"By comparison, a bridge has to be given a new deck every 3 to 5 years. It costs an average of nearly \$10 to buy and lay each bridge plank. Every year, bridge approaches have to be repaired. And after a time, the whole structure has to be replaced."

It is to be noted that the county has not had to buy a bridge in the last 6 years. Each time a new bridge has been needed, one has been available from a section where a drop inlet had been built. The 80-foot bridge will be moved to a site that has already been chosen.

"We still have a long way to go," Kuhr concludes, "and we can't go ahead as fast as our farmers desire. But we are on the move. When we get through, road and bridge maintenance costs are bound to drop to a small fraction of what they are now. Remember, we've had no maintenance costs on drop inlets built thus far."

Cooperation of county commissioners, soil conservation district, and the Soil Conservation Service is moving ahead in the interests of economy, safety for the users of the roads, and conservation of the county's soil and water resources.

REVIEWS

FORESTRY AND ITS CAREER OPPORTUNITIES. By Hardy L. Shirley, 492 pp. 1952. New York, N. Y.: McGraw-Hill Book Co., Inc. \$6.50.

There have been numerous books on the general subject of forestry and its scope and also various leaflets and articles on forestry as a lifetime job. From a rich background of forestry research and teaching, Dr. Shirley has written a book that combines the two subjects. One purpose was "to present a broad picture of forestry" both historically and as related to national and world economy. But primarily the book was written "to help beginning students to understand the many facets of forestry." This general treatment of forestry provides the background to aid the student readers "in deciding if forestry is to be their life career."

The first half of the book covers forestry and forest products, ranging from historical facts through distribution of forests, their protection, management, and on to the primary and secondary products of the forests. Although these chapters condense the subject, they are full of interesting details. The reader, for example, gains a good understanding of the paper industry and recent developments in wood chemistry. Appreciation of the varied fields of forestry is built up without special emphasis on any one activity.

Careers in each major field and the various opportunities for employment in these fields are given attention in the latter half of the book. The qualifications, rewards, and hazards are fairly sketched for the student reader. The realistic presentation of all factors to be met in the commercial operation of a forest property marks chapter 15 as one of the most outstanding in the book.

A wide range of material, including the De-

partment of Agriculture Year Books and studies of Society of American Forestry committees, was drawn on for reference. Statistical tables are few, with considerable data of this type in the text. The 23 pages of index provide full coverage for reference. Illustrations are well selected.

It is hard to avoid some duplication or extra writing in attempting to cover as broad a subject as this and to touch all interests in forestry. Not all chapters would be of interest to the general reader and the student may find some that are beyond his needs.

The book will be a valuable contribution in vocational guidance. It also offers to the general reader a fund of forestry and products information that is nontechnical, interestingly written, and up to date.

—C. B. MANIFOLD

AUXILIARY HOSTESSES AT CONVENTION.—Members of the Women's Auxiliary of Soil Conservation Districts in Nebraska are looking forward to being hostesses at the NASCD Convention in Omaha, February 3-5. They are planning a "get-acquainted tea" and other functions so that the women from all States may know each other.

The women of the Nebraska Auxiliary are keenly interested in soil conservation and are happy for the opportunity to hear the outstanding speakers the men will have on their program. As Omaha is a central location for the National meeting, they hope for a large attendance with representatives from every State.

COOPERATION PAYS.—A \$17,000 community drainage-ditch program at Sunderland, Mass., is yielding many public benefits and helping 54 farmers with excess water problems on 639 acres. Officials and citizens of Sunderland are so well pleased with results that they are planning two additional jobs. These will help more townspeople and benefit 1,200 wet acres on 52 more farms.

Under the original program, with the town and farmers cooperating through the Franklin County Soil Conservation District, sharing the cost on a 50-50 basis, a series of old drainage ditches is being cleared and rebuilt. Through this operation farmers have turned wet and unproductive land into fertile cropland that can be worked with ease. The public has benefited through more effective protection of private property by control of runoff water from town roads. Also, home owners along the roads no longer have wet cellars. This job involves about 30,000 feet of ditching. The two new projects now being organized will produce 31,000 feet of ditches.

CONSERVATION STOOD WATCH.—James H. Whitaker, of Marshall County, Ala., thinks the best way to get an appreciation of conservation farming is to come back to the farm after an absence of 2 years.



Whitaker examining volunteer button clover in corn middles, September 1952. The clover, planted in 1949, reseeded each year during his absence.

Whitaker, after a tour of duty in World War II, bought a farm and worked out a conservation program in 1948 with help of SCS technicians in the Northeast Alabama Soil Conservation District. Included in the plan were sericea, alfalfa, tall fescue, and white clover for pasture and hay; reseeding crimson clover and button clover for cover crops on Class II cultivated land; and waterways of fescue and sericea.

Whitaker was called back to the Navy in 1950 and didn't see the farm again until he was released in June 1952. The sericea needed only fertilizing and mowing. The tall fescue and white clover were going into the summer in good shape. Crimson clover was setting a good seed crop on an excellent volunteer stand, and the button clover looked so good that he turned it and planted late corn. The alfalfa was about gone, the only failure on the place.

Whitaker went to a cattle sale and came back with enough cattle to stock the pastures that were ready to provide excellent grazing. Thirty days after his return he was back in business, thanks to the sound conservation program he had put on the land.

NOBEL PRIZE TO WAKSMAN.—It is with vicarious pride that SOIL CONSERVATION Magazine takes notice of the award of the 1952 Nobel Prize in physiology and medicine to a distinguished former contributor to these pages, Dr. Selman A. Waksman, microbiologist, New Jersey Agricultural Experiment Station.

Way back in January 1938 this magazine published Waksman's excellent and well-illustrated article, "The Living Soil." Again, in April of that year, appeared another outstanding feature, "Humus and Soil Conserva-

tion." Already the Rutgers University scientist was on his way to national and international recognition, and his writings were evidencing his explorative abilities as well as his unusual talent for clear and interesting writing.

The Nobel Prize, specifically, was for Dr. Waksman's discovery of the "wonder drug" streptomycin, used in combating tuberculosis. It is the fourteenth time that the prize has come to an American, and the first time that it has gone to a teacher at an American agricultural college. With Dr. Hans Adolph Krebs, British scientist, he shares the money attached to the honor, the two dividing the sum of \$32,910.51 between them.

LAURELS FOR PARKS.—The Fairfax (Va.) Rod and Gun Club, flushed with pride in its new man-created lake on its 358-acre tract in Prince William County, at dedication ceremonies paid tribute to Harry R. Parks, SCS work unit conservationist. Receiving him as an honorary member—only the second in the club's history—the organization cited Parks "for his distinguished service, technical assistance, sound advice, and complete cooperation, rendered in connection with the planning and construction of its lake."

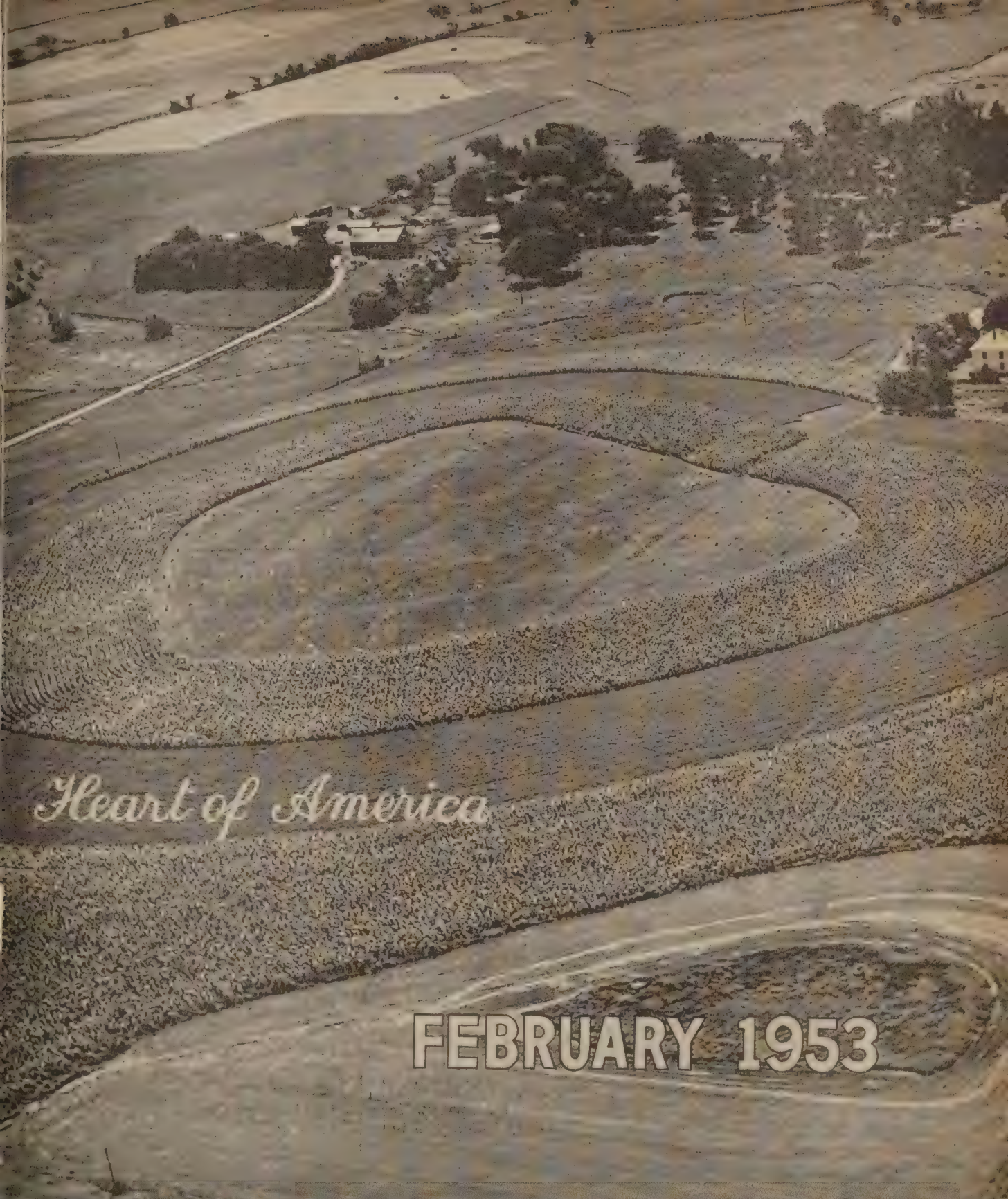
The club plans a comprehensive program for members and their families, with rifle ranges, skeet field, archery facilities, camping grounds, and numerous other attractions. The lake has been stocked for fishing, and wildlife will be plentiful. Woodland, waters, and fields will be under expert management.

HOLDING WATER WITH FIBERGLASS.—Dale Balch had a big spring on his farm, 5 miles northwest of Dayton, Wash., from which he was getting little use except for household purposes. He investigated the possibility of building a pond for livestock water and supplemental irrigation on a small pasture. The site was found to be underlain with open gravel—very poor pond material.

After Balch had given up the idea of building a pond, Bill Meiners, SCS technician, suggested the possibility of using fiberglass material to seal the reservoir area. Balch decided to go ahead with the pond after some encouragement from a fiberglass company as to costs, methods of installation, and availability of material.

A 120,000-gallon pond, 210 feet in circumference and 11 feet deep, was constructed. Seven hours of D-6 dozer time were required; and the 396 square yards of fiberglass material, which cost \$392.47 f. o. b. Dayton, were put into place in 2½ days by two men.

Dale's 3-acre irrigated pasture, seeded to orchardgrass, Alta fescue, and Ladino clover, will now carry his eight head of purebred Shorthorn cows. Running stock in this fashion had never been heard of in this area, and Dale believes that annual cropping, seeding the highly erodible areas to grass and legumes, and irrigated pastures may change farming methods in Columbia County.



Heart of America

FEBRUARY 1953

SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION•

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SECRETARY OF AGRICULTURE

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CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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ACCOLADE.—Employees of the Soil Conservation Service believe in human conservation as well as soil and water conservation. This little red feathered fellow, "Oscar", was presented to Chief Salter immediately after the Washington and Beltsville offices of SCS went over their goal with contributions to the 1953 Red Feather Community Chest drive this fall. In a memorandum to SCS workers, Dr. Salter expressed his sincere appreciation for their liberal participation in the campaign.



FRONT COVER.—In this month of St. Valentine's Day, what more appropriate introduction to this issue could there be than this air view taken in Minnesota? Nature writes many interesting designs when farming follows the contours. In this instance the symbolism is a multiple one—day, style, of farming, economic, and geographic. The picture was made by a commercial photographer at the direction of the Waseca Soil Conservation District, to which district the negative belongs.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Sheep taught him how to handle people.



THE OLD SHEEPHERDER

By FRED W. HERBERT

TO do justice to this individual (he doesn't mind being called a "character"), one should use a longer heading, like those on the old-time novels: "The Old Shepherd, Patriarch of the Salinas, or a Diamond in the Rough."

Earl Widemann of California glories in the title "Old Shepherd", but he'll scratch his head over "Patriarch", and, after a trip to the dictionary, he won't like it. It denotes an "ancient" while Earl is modern. He is usually a few steps out in front of the other fellow. In soil conservation, he's way out in front.

Earl accomplishes his purposes in an unconventional manner. He irritates people. And the only counterirritant that hurts less than the pressure he puts on is to do what he wants. What he wants is always something that promotes soil conservation.

To know the Old Shepherd only superficially is to misunderstand him completely. My

earliest contact with him was on an auto trip down the Salinas Valley. Suddenly he said, "Pull up alongside that road crew." The Old Shepherd called, "Hey you!" As the road foreman walked toward the car, Earl started a vituperative verbal barrage, "When are you going to finish this job? Already you've spent 2 weeks on 3 day's work—just wasting the taxpayers' money. I'm going to get you fired." This, and more, with some highly descriptive adjectives.

The foreman completely ignored him, look at me and said, "You'd better get that old fool out of here before I make him a hospital case."



Vincent W. Shally, technician, discusses improved pastures with The Old Shepherd.

Note.—The author is assistant state conservationist, Soil Conservation Service, Oakland, Calif.

So we got out of there. Bitter enemies thought I.

The Shepherd turned and said, "Wonderful guy. Known him all my life. One of the best friends I've got." I've no doubt that these sentiments were reciprocated by the foreman. These are the terms on which Earl Widemann has hundreds of friends in the great lettuce- and vegetable-growing Salinas Valley, known as the "Salad Bowl of the Nation."

Earl is a conniver, a practical joker, a humorist, a grass-roots diplomat. But all his conniving, joking, fun, and tact have one main theme, one principal interest—soil conservation.

At the last annual convention of the California Association of Soil Conservation Districts, Earl and his fellow directors of the Gloria Soil Conservation District put on a two-act skit, with Earl as the leading man. He appeared leading a milk lamb, which was nudging him all over the stage. Earl had a bottle of milk in his back pocket, and the lamb knew it. The first act of the skit looked silly at the start. It portrayed a meeting of the "Stinke Hollow Soil Conservation District." But the audience of district directors soon saw that behind all the nonsense, they were being shown how *not* to run a district. The second act showed the "Success Soil Conservation District," where the directors did everything a good district governing body should do. Earl had his fun—and taught a lesson in soil conservation.

Widemann started farming in 1908. "In that year", he said, "I made \$5,000, and in 1909, \$4,000. I was the richest kid in town." In 1910 he bought the 864-acre ranch near Gonzales, in the Salinas Valley, which he owns today. In 1918 he went broke and took a job with the International Harvester Co. But he kept the ranch, using it for a "trading post." Trading is in his blood. "My father was a French gypsy and my mother traveled with a Missouri wagon train, so I'm not content unless I am trading."

Earl sketched the story of his ranching operations that led to his interest in soil conservation. "I ran 100 brood sows for several years. Never sold grain off the ranch—always fed it and hauled it off in livestock. In 1941, a very wet winter, I put wheels under 400 hogs and sold out. In the spring of 1942 I found myself with 256 ewes and lambs and with five very large

gullies through the ranch. The ewes could jump across, the lambs would fall in. I was riding ditches every day.

Then I heard about soil conservation. I got some pamphlets and started working on gully control, most of which I did backwards. But I soon learned and helped form the Gloria Soil Conservation District. We started the district with 35,000 acres and now have over half a million acres."

With assistance from the district, the Old Shepherd controlled the gullies on his ranch, built three large stock water ponds, put in 60 acres of permanent pasture and 40 acres of alfalfa. He now runs 500 breeding ewes. But he says, "I still buy and sell; if you are on the trade, come out sometime."

The Old Shepherd has been president of the Gloria Soil Conservation District since its formation in 1942. But he didn't confine his interest to that district. "My trading instinct," he says, "goes pretty deep. I like to see bad farming traded for good." So from 1947 to 1952 he traveled up and down the Salinas Valley, trading on rugged friendships and his knowledge of the land and people for promotion of soil and water conservation. Five districts came into existence—Mission Soledad, Bitterwater, San Vicente, Nacitone, and Upper Salinas. Recently these, together with the Gloria, formed themselves into the Salinas Valley Association of Soil Conservation Districts. The president? The Old Shepherd!

Thus, Earl's interest developed from his own soil problems to those of the immediate community, then to the Salinas Valley through the association of districts. And it hasn't stopped there. He is keenly interested in the California Association of Soil Conservation Districts, as a State director, representing the central-California area. He has other jobs, too, such as director of the Production Credit Association of the Salinas Valley and, for many years, he has been president of the California Central Counties Wool Growers. He keeps busy promoting meetings, tours, and programs for soil conservation. He knows how to get other people to work out the details. The Old Shepherd doesn't hesitate to herd people, as well as sheep, in the interests of soil conservation.

DISTRICT PROFILE

OLIVER HYATT
of
NEW YORK

GET to know Oliver Hyatt and along comes a good feeling that the destiny of productive, American soil is in wise, young hands in Rensselaer County, N. Y. Big, capable Oliver is chairman of the local soil conservation district directors—has been ever since organization in 1950. It's a bumptious, up-and-coming new district in rugged country, where heavily glaciated hills tumble over the border from Vermont's Green Mountains and the Berkshires of Massachusetts. It needed leadership in biceps as well as brains. Oliver has given good measure of both.

He has been beating the laws of gravity every day of the past 18 years at Hy-Ayr Farm, where his field elevations swoop up and down between 1,080 and 2,100 feet above sea level—with most of them at 1,500. Yet Oliver has put the "top of New York's agriculture" to work for him successfully and has a conservation plan which efficiently ties down his soil and water.

To get an accurate picture of what the Rensselaer chairman has accomplished, you have to go back to the depression days when a newly discharged young gob stowed his duffel at a run-down mountain farm. Oliver had hopped from an engineering course at Antioch College into the Navy with his heart set on pilot's wings then being offered enlisted ranks. He sweated out the required amount of service, passed his tests—and then Uncle Sam ran out of money for the program but kept the option on Oliver's contract for the remainder of the 4-year hitch. Characteristically, Oliver pulled in his oars, jury rigged his ambition, and sailed on through all the valuable training he could get as an ordinary tar.

Getting his land legs at Hy-Ayr Farm, Oliver soon discovered plenty of application for his background of aviation mechanics and sheet-metal work—particularly, while the out-at-elbow times demanded the last jot of use from aged farm machinery and scarce coin. The ex-sailor soon won his neighbors' respect as a man who could do things, even though he wasn't,



Oliver Hyatt.

strictly speaking, a son of the soil. Hyatts had farmed at Scarsdale, N. Y., a century earlier, but Oliver's dad was and is an engineer. From the way the ex-sailor buckled into his unfamiliar task, onlookers were bound to admit that here, at least, was a grandson of the soil.

The 350 rough, tough, and neglected acres of cropland near the hamlet of Cherry Plain began to look alive in short order, as Oliver put into effect the best advice he could get from agricultural bulletins, Cornell University, the Farm Bureau, and the Dairy Herd Improvement Association. Long years of dawn-to-dusk labor produced mounting hay and grain yields, and a big barn slowly filling with high-grade milkers. Between dairy chores, Oliver leveled his sights on the 400 acres of idle woodland, and made them pay their way with selective thinning, cutting, and other modern production. To this day, his conservation scheme includes heating his buildings with wood culled from his timber and pasture clearing.

Oliver's thinking about better land management for the county was stimulated by flash

floods on the Hoosick River watershed. On New Year's Eve, 1949, such a flood plowed through the town of Berlin, leaving half a million dollars' worth of damage in its wake. Oliver attended the nearest and earliest conservation meeting afterward. The tremendous opportunity for achievement in soil-and water-saving practices, as well as in flood control, offered by the district plan, impressed him greatly. He put himself wholeheartedly behind the movement to form a district in Rensselaer County.

Oliver has put his own unique vigor into his work as chairman of his soil conservation district. With the other directors and G. Claire Herting, district conservationist, he has helped make neighborhood group planning produce better soil and water control, attending as many as 20 over-the-back-fence meetings during a single season. Rensselaer district activities have the mark of inspired leadership, and thus far they have attracted over 250 farmer-cooperators. Pooling their enthusiasm and directorial talent with those of districts in neighboring Washington County and Saratoga County resulted in a face-lifting field day near Troy that stirred New York agriculture profoundly. When a crisis threatened the program involving manipulation of over 80 pieces of light and heavy machinery, Oliver was credited with averting it by jumping aboard a 13-ton bulldozer and keeping the pond demonstration on the move.

Ask him what he does for recreation these days, and he flashes a smile and admits he doesn't have time for much but an occasional barber-shop song session with a few friends. Otherwise, he gets a big kick out of showing visitors that he practices the soil conservation he preaches. Hy-Ayr is too rough for extensive contour strips, but modified strips are there, nevertheless, along with 300 acres of fenced woodland and 40,000 new tree seedlings set out for tomorrow's timber. Oliver's 55 registered Ayrshires feed on lush, new grassland, including birdsfoot trefoil. His 1,000-foot ledge of multi-flora rose, in spite of the climatic conditions, has developed 5-foot-long stalks 2 years after planting.

Oliver looks forward to building a pond, which will open up more grassland and enable him to increase his herd and farm enterprise to comfortable two-family proportions. Best of all, he likes to envision what the "Hyatt farm

youth training system" may some day mean to the Nation. There's nothing formal about it, understand, but in the past 18 summers more than 50 boys, mostly from the city, have lived and worked with Oliver and his wife. They've earned their salt, for the most part. What particularly pleases Oliver is the way they've responded to his "walking school of soil stewardship". The proof: Approximately 15 of them have gone from Hy-Ayr directly toward basic agricultural careers. One has already won a national reputation in the breeding field.

Proud as Chairman Hyatt is of his association with the Rensselaer district of today, he is equally mindful of his responsibility toward the farmers of the future.

—BERNHARD A. ROTH

STUDY GRASS PLANTINGS.—The annual meeting of the board of supervisors of the North Central (Ala.) Soil Conservation District late last summer was featured by a barbecue and tour of the Soil Conservation Service nursery at Thorsby. The supervisors invited cooperators and their friends; and about 250 persons attended, including delegations from each of the counties in the district.



The visitors were divided into groups and studied seed-production blocks and observational plantings of the more important soil-conserving crops. The tour included plantings of fescue-Ladino clover, sericea lespedeza, Pensacola Bahiagrass, Bahia-fescue-reseeding crimson clover, Coastal Bermuda-grass, and pine trees, Nursery Manager W. C. Young reports.

One of the smaller groups is seen above observing a fescue and Ladino planting. The fact that the fescue had turned brown following the severe summer drought was used to emphasize that this crop can be depended upon only during the fall, winter, and spring.

CEMETERY PROTECTED.—When the upper part of Union Cemetery at Steubenville, Ohio, was left gullied and bare after a strip-mining operation, the cemetery officials called in Robert Jones, work unit conservationist, and Gabriel Rozsa, conservation aid. Under their directions five terraces were built, topsoil was applied, and the slope seeded to ryegrass.



Farm and ranch ponds provide additional habitat for ducks and other kinds of wildlife.

FARM AND RANCH PONDS

By LAWRENCE V. COMPTON

THE multiple-purpose farm pond, carefully located, scientifically designed and properly built, is a commonplace element in today's rural scene. This, however, has not always been so. Not many years ago, farm ponds were scarce. They were used mainly for watering livestock and occurred primarily in areas where springs or wells or streams were inadequate for that purpose. Most of them were shallow, muddy, and small. Because they had not been correctly located, designed, or built, many washed out and others periodically went dry. Some had been stocked with fish but it was the rare one that produced the sizes and quantities that the landowner expected. Few met the specifications that we now consider important for successful fishponds.

Note.—Reprinted from the Journal of Wildlife Management, where it was one of a series of 12 papers published as a symposium on "Farm Fish Ponds and Management." Ten of the papers summarized pond fish studies in 9 states and one Canadian Province; the other two, including the present one, were introductory in nature. The symposium appeared in the July 1952 issue of the Journal, pages 233-288. The Journal is published by the Wildlife Society, which anyone interested in wildlife management may join by applying to the executive secretary, Dr. G. A. Petrides, Michigan State College, East Lansing, Mich.

Raising fish is one of the uses for farm ponds and thousands of them have been built for that use alone. Most, however, are built to provide a dependable supply of water for livestock, irrigation, fire protection, orchard spray, or for a combination of these and other uses. It is necessary to review the development of the present-day farm pond in order to understand its development as a fishpond and its value to other wildlife.

Soil and water conservation and land-use programs that got under way in the 1930's are responsible for the widespread interest in ponds shown during the past 15 to 20 years. These programs emphasized pond building because in many places ponds make it possible to control erosion and to obtain much needed adjustments in land use. For example, the retirement from cultivation of badly eroded fields and of other lands not suitable for cultivation is often best done by establishing permanent grass cover. This results in increased acreage of pasture which frequently cannot be utilized by livestock because of the absence of watering places. Farm ponds provide the necessary water and permit a farmer to make this change in land use and to continue his farm as an economic unit.

As another example, inadequate and poorly distributed stock water has been one of the obstacles to obtaining proper utilization of forage in the ranching country of the West. Good range without stock water cannot be used, whereas areas with water have often been overused. The development of stock-water ponds



Many ponds are built for the storage of irrigation water, as was this one in Arizona. With careful management, they can be used for fish production.

makes it possible to balance the grazing pressure between such areas and obtain proper use on both.

The building of ponds has reached considerable magnitude. Two bureaus in the United States Department of Agriculture assist farmers and ranchers to construct them. The Soil Conservation Service, working through local soil conservation districts, provides technical assistance on site selection, design, construction, use, and maintenance. The Agricultural Conservation Programs Branch of the Production and Marketing Administration makes conservation payments to farmers and ranchers for the construction of ponds that are to be used primarily for soil and water conservation. Under recent arrangement, the Soil Conservation Service also provides the necessary technical assistance on ponds for which conservation payments are made.

In the 14 years from 1937 to June 30, 1951, the Soil Conservation Service provided technical assistance to farmers and ranchers in the construction of 215,435 ponds. From 1936 to the end of 1950, the Production and Marketing Administration made payments for the construction of 823,797 ponds for livestock water. At the present time the Soil Conservation Service is assisting farmers to construct ponds at the rate of about 38,000 a year. In 1950 the Production and Marketing Administration made payments on 59,600 stock-water ponds. An unknown number have been built without assistance from either SCS or PMA.



There is food to be had from this Idaho pond—and also fun.

In the summer of 1950, the Fish and Wildlife Service of the U. S. Department of Interior estimated that there were then about 1,576,000 farm and ranch ponds. At present (January 1952) it is conservatively estimated that there are 1,666,000. The fact that widespread interest in farm ponds is a recent development in agriculture was well illustrated by H. S. Swingle, who in 1949 stated that in the previous



This pair of ponds is in West Virginia. Between them is a series of pools for raising minnows—still another source of farm income.

15 years there had been constructed in the United States at least 100 times as many ponds as had been constructed during the preceding 200 years.

The idea that the farm pond could also be used as a fishpond is not new in the United States. For at least 50 years prior to 1940, intermittent attempts were made to interest farmers in producing fish. The point was made repeatedly that a fishpond provides an interesting and nutritious addition to the farm diet, that it provides recreation in the form of fishing, swimming, bathing, and skating, and that the pond itself is a thing of beauty that in many ways adds to the pleasures of farm life. In 1872 the first funds were appropriated for the Federal Government to make free distribution of fish for stocking purposes. There is also a long history of free distribution by States. In spite of these efforts, few farmers seriously tried to raise fish.

Four factors operated for years to prevent the farm fishpond idea from really catching on. First, there were no successful and easily applied methods for managing a fishpond. Second, practical "grass-root" ways of taking the idea

to the farmer had not been used. Third, suitable ponds were the exception rather than the rule. Fourth, technical guidance in location, design, and construction of ponds was not easily available to farmers.

The last two of these factors that had worked against the widespread establishment of fishponds were eliminated by the appearance of the conservation programs previously discussed. Through these programs both technical guidance and financial aid were brought to farmers and ranchers for the construction of ponds. The result was that thousands of well-built ponds became available for use as fishponds.

The research done by H. S. Swingle and E. V. Smith at the Alabama Agricultural Experiment Station provided the simple and successful procedure of fishpond management that had been needed. With the publication of their work it became possible to make definite recommendations as to species, number and size of fish to be stocked, kind and rate of fertilization, mode of harvesting the crop, and other aspects of managing a pond for the production of warm-water fish.

Biologists in the Soil Conservation Service

saw in the procedure developed by Swingle and Smith an opportunity to help farmers and ranchers get additional benefits from the ponds that they were building. Technicians of this Service were instructed in the fundamentals of fishpond management—how to build, stock, fertilize, and otherwise manage a fishpond. Working through local soil conservation districts, they carried this knowledge—first in the Southeast and later throughout the Nation—to thousands of farmers and ranchers. The Agricultural Extension Service and State Game and Fish Departments were also instrumental in popularizing fishponds and helping farmers establish them. Only with the assistance and cooperation of the U. S. Fish and Wildlife Service and the State Game and Fish Departments was it possible to start and to have continued the development of farm fishponds. Through the efforts of these agencies, farm ponds were and continue to be carefully stocked with the required numbers and kinds of fish.

A good fishpond calls for certain features not always found in farm ponds. The water level must be reasonably stable. A continuous flow of water through the pond is undesirable because it makes it difficult to maintain a high level of productivity. If the farm family is to get an appreciable amount of fish from it, the pond should have an area of not less than one-fourth acre. In warm climates the depth of water at the deepest part should be at least 6 feet; in cold climates depths of 10 to 12 feet are needed. To discourage the growth of weeds, the shore should slope steeply to 3 feet below the water level. A permanent drain is desirable so that the pond can be emptied if it becomes necessary to clean or restock it.

None of these requirements prevent a pond that is being used to produce fish from also being used as a source of water for livestock, and other farm purposes. Nevertheless, there are a few reservations about the use of fishponds. If livestock are allowed unrestricted access to them, their trampling will flatten the shore and make the water muddy. A flat shore can cause a weed problem and muddy water lowers the productivity of the pond. Grazing also destroys wildlife food and cover. These difficulties can be prevented by fencing the pond and piping stock water to a trough below the

dam. Ponds that are used for storage of irrigation water are subject to considerable fluctuation in water level and often present problems when used as fishponds. Even these have, however, been successfully managed (Fuqua, 1947).

Farm ponds may have some beneficial effects upon the control of floods and the recharge of ground waters, but these are probably of minor importance. Farm ponds are intended to be permanent sources of water and the cost of construction must be commensurate with the value received by the farmer. These restrictions limit their effectiveness in flood control and recharge of ground water. As a permanent source of water, a pond must have an impervious basin so that it will not leak. Special efforts are made, such as rolling and packing, to make it impervious. A pond that does not leak does not contribute much to the ground water.

The belief that farm ponds have an appreciable effect upon flood control comes about through the misunderstanding of the operation of flood-control reservoirs. For a reservoir to operate successfully in flood control, it must aid in reducing peaks in flood flow. This is done by first catching runoff water, then releasing it slowly to the stream channel system. Flood control reservoirs are therefore built to have large temporary storage capacity but have only a small permanent pool. Farm ponds are built upon different principles. They are intended to stand full or nearly full of water at all times and all excess runoff is immediately released through the spillway. A farm pond has its greatest flood-control value when it is empty, but when empty it is of little use to a farmer.

The value of farm and ranch ponds to birds and mammals is at present difficult to fully appraise. Although several studies are in progress, only a few have been reported upon. Water is essential to many forms of wildlife and they utilize that which is provided by farm ponds. In many parts of the arid and semiarid regions of the West and Southwest, these ponds provide permanent and accessible water where such water did not previously exist. In the humid parts of the United States, they bring better distribution of water and reduce the seriousness of droughts.

That farm ponds are of value to wildlife is well illustrated by the use made of them by



The big barn on this farm in New Jersey was destroyed by fire but the other buildings were saved by water pumped from the stock pond.

migratory waterfowl. A 1950 aerial survey of the part of South Dakota west of the Missouri River showed that in this area of 39,000 square miles there were about 40,000 man-made impoundments which contained about 100,000 acres of water, and which harbored 141,000 ducks (Murdy, 1950). The conclusion was: "Thus, through the construction of stock dams a new breeding population is building up on the west-river ranges—a population that in 1950 contained 23 percent of the ducks in South Dakota." In Colorado, New Mexico, and Texas, Allan (1939) found bluewinged teals, mallards, pintails, and ruddy ducks nesting near and raising their young on ranch ponds. Eleven such ponds in Colorado supported a summer duck population of 107 birds, 73 of which were young. On five ponds, each with a water area of not more than 1 acre, a total of fifty young ducks were raised. Allan also recorded the use of small ponds by ducks, geese, and shorebirds during periods of migration. Similarly, in many other parts of the West, ponds have made new habitat for waterfowl.

Waterfowl are not the only kinds of wildlife that are benefited by farm ponds. Following a study of muskrat population in 40 farm ponds in Missouri, Shanks and Arthur (1951) stated: "Without question, the thousands of farm ponds throughout the midwest provide an additional habitat type of importance." Other studies have shown that California quail, bobwhite, mourning doves, prairie chickens, and antelope are benefited by the additional watering places provided by ponds. A study of the wildlife values of 91 ponds in Missouri revealed that every one of the pond areas was used by some

species of game or fur bearer (Greenwell, 1948, 1952). A total of 90 species of birds and more than 10 species of mammals were recorded in pond areas. Cottontail rabbits were found at 85 percent of the ponds, doves at 65 percent, muskrats at 63 percent, raccoon at 59 percent, and bobwhite quail at 55 percent. Twenty percent of the farmers questioned believed that a new quail covey headquarters had been established by the building of the pond. It was concluded that: "High level of use by many species indicated impressive wildlife values for farm ponds, but attention to pond location, cover development, and protection from livestock can bring greater values."

Without question the man-made pond has become a reasonably permanent part of our landscape. The number of them now in use totals well over one and a half million and they serve many purposes, utilitarian, recreational, and esthetic. Farm and ranch ponds have become a factor of great importance in the welfare of waterfowl, upland game, fur bearers, and other forms of wildlife. Their development as fish ponds is only one of the opportunities that they offer in wildlife management.

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"Country Editors" Give Impetus to Island Farming

THE soil conservation district movement in Massachusetts has found valuable allies in a famous editorial team, the Houghs of Martha's Vineyard. Henry Beetle Hough is the well-known author of "Country Editor," a best-selling account of weekly newspaper work. He and Mrs. Hough have edited the *Vineyard Gazette* into world-wide fame in the past 32 years.

Since the Dukes County Soil Conservation District was organized in 1947, readers of the *Gazette* have consumed a steady and palatable fare of district doings and conservation farming, thanks to the Houghs' quick recognition that a vital influence had reached the island shores.

Land management on the Vineyard had pretty much gone to pot, and although the ruined farmsteads, sheep runs and windmills made pictur-

esque attractions for summer tourists and magazine illustrators, the newspaper couple realized that the 5,000 permanent residents needed a more positive economy. The conservation way looked good to them. They could see a productive future for methods that would revive the

By

BERNHARD

A.

ROTH



Symbol of new industry.

Note—The author is information specialist,
Soil Conservation Service, Upper
Darby, Pennsylvania.



island's drouthy soils, clear the vast tangles of scrub growth for lush, new pastures, and insure more moisture for vegetable gardens.

Their enthusiasm mounted as they came in contact with the district's zealous supervisors, Arnold Fischer, John Mackenty and Col. Edward Roth, Jr. Ezra Shaw, an SCS technician, captured their imaginations by explaining how the reinvigorated fields might some day support high grade dairy and beef stock enterprises. Thoroughly convinced of the program's value, the Houghs, themselves, became cooperators and started working on a plan for their 10-acre wildlife area.

Five years later, the newspaper's support of the district campaign was bearing notable fruit. There was a brand new cooperative dairy plant through which conservation farmers had rounded up 80 percent of the island's milk business. There were farm ponds handily supplying

Removing grass feed from trench
silo on the Benjamin Cohan farm.

Writing-publishing team.





Wacha Pond makes a good source of water for the herd of Joseph Walker.

Distinctive green-and-white signs mark the homes of district farmers.



water to some of the finest herds to be found anywhere. Irrigation systems were at work carrying hundreds of acres of improved pasture land over the dry period, or freshening the truck crops for the booming summer trade. Complete, integrated soil and water plans were operating on more than 100 farms and 10,000 acres. And in the island's numerous, forest-fired areas, 100,000 district sponsored trees were offering protection to scarred land.

At their fifth anniversary meeting, the Dukes County cooperators paid a deserved honor to their editorial champions, by presenting them a silver cup for outstanding service to the district. Chairman Fischer noted that the district achievements had been heightened immeasurably by the strong backing of the *Vineyard Gazette*. He also observed that the paper's policy was of inestimatable benefit to the cause of conservation in general, affecting a readership extending far beyond the little island's surf bound limits.



Six-year-old red pine interplanted in typical scrub oak forest. Frequent fires, drouthy soil conditions and constant wind depress quality in the Vineyard.



District supervisors meet with technicians for programming: John T. MacKenty, secretary-treasurer; Ezra Shaw, conservationist; Arnold Fischer, chairman; Col. Edward Roth, Jr.

Acknowledging the award in one of their subsequent columns, the Houghs characterized their point of view in classic style:

"... We don't think anyone could live on Martha's Vineyard with its deserted fields and relics of husbandry that existed long ago, with-



This fine herd of registered Ayrshires is on Oscar C. Burke's Katama Ranch. The pasture is on original prairie-type soil, rare on the island and a prolific hay producer.



Multiflora rose, an old conservation standby, thrives in the Vineyard's mild island climate. This contour hedge is on the E. B. Keith farm.



Combine harvesting barley on the Benjamin Cohan farm. Grain averaged 35 bushels per acre. The straw is being used for cattle bedding.

out becoming keenly alive to the importance of soil conservation and the opportunities it represents, both for rebuilding community resources and for individual enterprise. In our island newspaper work, the question continually arises, 'What can be done for the future of the people and their resources?' There has never been a clearer answer, we think, than that offered by the program of the soil conservation district, for the land is fundamental to everyone. The change here in the past few years and the transition from a feeling of decay in the countryside to a spirit of renewal and growth, has been remarkable."

Editor Hough restated his views on a National Farm and Home Hour broadcast last November, when he drew countrywide attention to his little island and to its spectacular agricultural revival under the district program.

CRIME AND EROSION.—Evidence that erosion might be responsible for a higher crime rate was presented by Judge Tom Candler at a district meeting in White County, Ga. While he was judge of the Blue Ridge Circuit he noticed that a number of criminal cases originated in a particular section. He asked Solicitor Fred Kelley what he thought was the explanation for this. Kelley said the answer was simple. The land had become severely eroded and was too poor to support the people who lived there. They had become undernourished and destitute and, as a result, more crimes were committed there.

KANSAN MAKES COME-BACK—WINS AWARDS

By BERYLE STANTON



The Thompsons on the land they love.

"I'M no fellow to sit around or run around," drawled out Jake Thompson of Esbon, Kans., as he was carefully explaining his theory of farming . . . and living.

But it wasn't until he had some good usable facts about soil conservation that he began to make headway in saving the rains that finally began to fall in Kansas. After 50 years of farming, Jake, now in his 79th year, recently received one award from the Kansas Bankers Association and another from the Jewell County Soil Conservation District for doing an outstanding soil conservation job—and he did it entirely with horses on a badly washed-out quarter.

When Lewis Stafford, who was Jewell County "key agricultural banker," presented the

Note.—The author is information specialist, Farm Credit Administration, Washington, D. C.

bankers' award, Jake said, "I didn't come here to get an award. I came here to see if I could interest some more farmers around in soil conservation."

Jake had been an early joiner and plugger for soil conservation in the county. He was No. 11 to sign up, back in 1944. Since then he's learned a lot of new tricks, most of them under the tutorship of the local soil conservation technicians. He says, "Clyde Reed, and the others always try to do the best they can for my land."

On the other hand, Reed points out that Jake began soil conservation at an age when most farmers are ready to retire. He gives Jake full credit for the determination to remake his land when he was given a chance to do it.

Jake loves his land. He lived on it, and with it, for 42 years—surviving three depressions, with the thirties the worst of the lot. So when

he was given still another chance to come back, after the dust storms and big depression, he grabbed it fast.

As he stood and gazed proudly at the one major terrace that runs almost the length of his farm, he told me, "I've got that one terrace that I wouldn't take a thousand dollars for if I couldn't get another." He went on to explain that his one terrace does a large part of the job for his whole farm, winding with the contour, draining rains off the slopes and keeping them up on the crop land.

"Back of this terrace are 57 acres that lay up good—up where anybody can farm. And it's easier to farm the land on the contour."

These 57 acres are all that's left of the original 97 acres of "broke" land. He has turned the other 40 back to grass in the past 6 to 7 years to control run-off. His soil conservation district furnished the seed, which he paid for. He uses a combination of brome and alfalfa or brome and sweet clover—a combination that most other farmers in the county also swear by to tie their soil in place and replenish its fertility. He also has 7 acres in buffalo and grama grass.

Jake also has a diversion dam to help control his run-off. Here he sowed half an acre of brome and alfalfa, again to help hold the soil, and he has a stockwater pond which is well protected from siltation by the terraces.

But Jake is never satisfied. He watches his soil assiduously. The first warm day last spring saw him out with his team, his mowing machine, and his pitchfork, filling in ditches with clover and weed stalks—ditches that had washed into the draw north of the house the past year when he was sick and unable to stop the damage.

And the next warm day saw him walking over his land with soil conservation men from Mankato to figure out a diversion ditch to run the water north away from this draw, to stop the washing. He put the draw and ditch land into brome and alfalfa with the idea that he could either cut for hay or leave as a binder.

Since Jake started his comeback in the early forties, he has grown a wonderful windbreak to the north of his house. The rows of trees extend 40 rods or so, the Chinese elm, locust, and cedar now reaching straight and tall. Just south of the windbreak are a huge garden, a grape arbor, and a beautiful orchard. Jake re-

called that this is the third orchard he had planted since coming to the farm in 1910. Bad weather destroyed the others.

"Now, after all these years, I'm just beginning to get this farm the way I want it," he avers. "My wife and daughter live here with me. And we're getting it ready to enjoy. I've remodeled the house by enclosing the porch to add one room, by shingling, putting on siding, and adding various conveniences. I have repaired a number of the outside buildings. Altogether, I guess I've spent about \$3,200 in the last year or so to let us live a little more comfortably—and much of the work I have done myself."

Even now, Jake does not intend to sit back and rock. "My mother lived to lack just a little of being 100. So I plan to keep busy with my land, letting my son do most of the heavy crop work from now on. But I'll take care of my cows, hogs and pastures myself. I figure I've got plenty of time ahead yet to indulge in some expectations. That's why I'm still doing as good a job of soil conservation as I can."

DUAL WATER - MANAGEMENT PROBLEM.—

O. M. Harrelson, who owns a farm in Horry County, S. C., has a water-management problem involving both drainage and irrigation. Harrelson uses the water he takes off his farm by drainage to water his pastures and crops during dry weather.

His first problem was to drain 203 acres of cropland and some additional land for pasture. He constructed a series of seven reservoirs to store the water for later use in irrigating his strawberry and tobacco crops. For a period of 7 weeks after tobacco was set in 1952, there was no rain. He estimates he got a profit of \$270 an acre from irrigating his tobacco during this period. On June 22, 3 inches of rain fell in less than an hour. Without drainage, 29 acres of tobacco would have been flooded, so he figures that the drainage system saved him more than \$1,000 damage from this one rain.

From less than an acre of strawberries which he irrigated last spring, he sold \$1,376 worth of berries; while a neighbor without irrigation sold less than \$200 worth from 2 acres. Harrelson's work paid good benefits both ways.

AS THE EDITOR SEES IT.—"The South today is writing the most thrilling chapter in its romantic history with soil conservation playing the leading role." So writes Dr. Paul D. Sanders, editor of *The Southern Planter*, in his column "Editorial Comment" in the November 1952 issue.

TOURS FOR THE FARMER'S WIFE

By W. S. HARRISON



Wife of host farmer discusses grass silage and grass waterways.

SOIL conservation district directors in Michigan recently were asked these questions: "Have you ever planned educational activities that would attract farm women?" "Have you ever asked womens' groups for assistance in your district's program, other than to serve your annual meeting dinners or refreshments?" It is not surprising that most districts answered "No."

Let's look at the record. Meetings, tours, and demonstrations have been aimed at just about every segment of the population—youth, veterans, adult farmers, and businessmen, but few, if any, for farm women. Directors have asked for assistance from many agencies and groups, at all levels. Not many have asked for help from womens' groups.

Are we overlooking a bet by not interesting farm women in the over-all district program? If your answer is "Yes," then there is plenty to do. A start has been made in Michigan. A "Know Your County" tour was held in the Allegan district, attracting 50 members of the local home-economics clubs. Hillsdale conducted a similar tour, planned jointly by the district, Soil Conservation Service, Extension Service,

and County Home Economics Council. Seventy women took part.

Then Lenawee swung into action. They advertised their effort as "Operation W." Nearly 100 farm women showed up at the local fairgrounds, to discover that they were to be taken on a soil conservation tour. Four district directors, the county agricultural agent, the home-demonstration agent, an Extension soil conservationist, and the Soil Conservation Service



George Salsbury tells about contour cultivation and diversion ditches on farm of George Blanchard.

farm planner, all had a hand. They visited four farms and the Michigan Producer's Dairy. School buses, provided by the directors, furnished good transportation. At each of the stops, the wife of the host farmer welcomed the group and explained their farm conservation plan. The ladies asked questions, just like their husbands: "How do you lay out contours? Do you like grassland farming? Do you use a preservative in your grass silage? Will this field be bare over winter?"

Sure, farm women are interested! Most of them own land. They have a stake in conservation. I have a hunch that more conservation practices will be applied to the land when farm women, along with their husbands, are convinced of their importance and value. Friend husband will be on safer ground too the next time he proposes to sidetrack a new bathroom or some kitchen linoleum in favor of lime or fertilizer on the back "forty."

Note.—The author is an extension specialist in soil conservation. Michigan State College, East Lansing, Mich.

WATER BRINGS HOPE TO

By PHIL LOVATO

SUNSHINE VALLEY

IS the Sunshine Valley of northern Taos County, N. M., destined to return to life?

This question is in the minds of a lot of people, but for 31-year-old Don Anderson of Jaraso, the question already has been answered. He is certain that prosperity will return to the valley and has figures to back up his view.

Don and his father, Fred, acquired 960 acres in the valley in 1945, and drilled a well on the site of an old stagecoach watering place. They found what they sought—an irrigation well which is producing 2,800 gallons a minute and making profitable crop production possible.

But let's turn back better than a quarter-century. In 1920, around 100 families had been lured to the area by prospects of profitable farming in Sunshine Valley. But there was one big drawback. No water was available to irrigate the rich 35 to 40 thousand acres in the valley, and without water the land could not be farmed.

Grandiose plans were made, however, to bring surplus water from the Red River, 15 miles away. Construction of a large canal was started. The big ditch meandered through Cerro and Questa and across the Cabresto Creek. Just before reaching Red River, however, the engineers discovered that the only way to get the river water would be to tunnel through a mountain, a task far beyond the means of the people backing the project. The idea of converting the sagebrush land into a productive valley died. The original 100 families gradually abandoned Sunshine Valley until only two or three live there today.

Today irrigation water is available to young Anderson, not from the Red River, as once contemplated, but from underground water coming from the Sangre de Cristo Mountains some five miles to the east.

Just how much water is available for irrigation is the big question. The New Mexico School of Mines, a Soil Conservation Service geologist,

and others have made surveys in the area. Their findings are not yet conclusive. The surveys and drilling are being continued. At least three local farmers, Bill Cater, Peter Mertian and Pat Martinez, are planning to drill wells. A big insurance company is said to be interested in developing the area, and other are looking into the possibilities.

But Don Anderson and his father already are convinced. When they drilled their well in 1945, they got 2,800 gallons a minute at 150 feet with a drawdown of between 45 to 70 feet—water enough to apply a 3-inch irrigation on 40 acres daily.

After drilling their well, the Andersons immediately cleared 635 acres. Crested wheatgrass was seeded on 110 acres, part of which could be irrigated if water and time were available. The rest of the land was to be farmed, so 200 acres were planted to potatoes and Moravian barley.

The Andersons realized that in order to obtain the most efficient use of water and to conserve and improve the soil, they would have to employ sound conservation. Soil Conservation Service men working with the Taos Soil Conservation District made soil and topographic surveys of the farm. Using these as a basis, a complete conservation program was worked out between the Andersons and the district.

One of the main things provided for in the conservation program was an irrigation layout for the most efficient use of water. This included land leveling, ditches, structures and runs of proper length.

Don Anderson found that the land leveling would cost \$70 or more per acre, so he decided to do the work himself and purchased a crawler-type tractor and a 13-yard carryall. He now has leveled 336 acres with this equipment.

Expensive? Yes! But this is what Anderson has to say about it:

"Leveling land for proper pump irrigation

Note.—The author is unit conservationist, Taos, N. M.



Here's the basis for Don Anderson's faith in the future of Sunshine Valley.



Back in 1920 there were about a hundred families in Sunshine Valley. Nearly all left because of lack of water for irrigation. This abandoned building is a reminder of past disappointment.

is expensive. The initial investment was high and, while my operating costs have been reasonable, it still costs a lot of money. Every gallon of water pumped has to be used wisely.

"The only way to do this is through conservation farming, by leveling the land almost flat to get good distribution of water and to keep the soil from washing. I accomplish this by basing the length of irrigation runs on the types of soil and amounts of water, and by carrying out other sound conservation practices.

"These practices are paying off in dollars and cents. In 1951 we harvested as high as 246 sacks of potatoes per acre on fertilized plots. This was on a field that had been leveled the

previous spring with a lot of topsoil being removed. This year the same field produced 318 sacks of potatoes to the acre. In addition, the Moravian barley, which is used for malting, has proved to be successful and will be grown as a cash crop along with potatoes."

But the Andersons are seeking still more water. A second well drilled recently is producing only 800 gallons a minute, so additional work will be needed to determine the extent to which this well is a success. Meanwhile, a large sump about 15 feet deep has been excavated near the first well and is producing 800 gallons a minute to supplement the original well.

So Sunshine Valley may be coming back to life. But its farmers will be more cautious than those who pioneered the area in 1920. Profiting from the Andersons' experience, they will use their best land and follow sound conservation.

LU PROJECT PAYS IN NORTH DAKOTA.—Returns to eight North Dakota counties from federally owned land in the State's Land Utilization projects last year amounted to \$40,117.15, or nearly 15 percent more than the year before.

Total income from Federal land in Land Utilization projects in the Northern Great Plains Region—North and South Dakota, Nebraska, Kansas, Montana, and Wyoming—was \$585,137, a gain of 27½ percent over the previous year.

Of this, \$505,975 or 86½ percent came from grazing fees. Other major sources of revenue were mineral lease rents and royalties, \$42,965; hay cutting, \$14,402; and cropping, \$18,596. The rest of the income came from miscellaneous sources, such as grass-seed production, forest products, and easements.



Forty acres of siphon-irrigated spuds brought yields of 246 sacks in 1951 and 318 in 1952

REVIEWS

SOIL CONSERVATION DISTRICTS IN ACTION. By W. Robert Parks. 224 pp. 1952. Ames, Iowa. The Iowa State College Press. \$3.50.

This is the first book on soil conservation districts since the movement began in the mid-thirties with the purpose of focusing and blending public and private efforts to attain conservation use and treatment of the Nation's agricultural land and water resources. It constitutes an objective and constructive description of the development and growth of soil conservation districts, beginning with the need for an approach of the soil conservation district type.

The seven chapters take the reader from the inception of the soil conservation district idea, through consideration of how districts are organized and operated, to a brief discussion of their future. The role of the Soil Conservation Service technician, the county agricultural extension agent, and other publicly employed agricultural workers is freely recognized.

A stimulating discussion of district governing bodies is emphasized in two appropriately titled chapters, "Role of District Supervisors" and "Increasing Supervisors' Role in District Administration." The author's tone reflects a belief that land owners and operators through their district supervisors are rapidly coming of age in their operation of districts.

The limited repetition in discussion of various aspects can be overlooked readily. The fact that members of district governing bodies throughout the book are referred to as district "supervisors" may cause difficulty to readers who are acquainted with districts in only one or two States where they are, by law, titled "commissioners" or "directors."

The book is well indexed. An appendix lists the code citations to each of the State soil conservation district laws which may be useful to some readers. The appendix also includes a listing, State by State, of certain services provided districts by the State soil conservation committee (board or commission).

This reviewer can suggest this book wholeheartedly to those who are interested in under-



standing how "cross-fertilization" of National, State and local experience "is taking place through the district mechanism" and is "resulting in a sounder and better proportioned approach" to soil and water conservation. These include members of district governing bodies, State soil conservation committees (boards or commissions), SCS technicians, conservation program administrators, county agents and others.

—T. L. GASTON

PASTURE PRODUCTION AND MANAGEMENT. By R. H. Lush. 193 pp. Illustrated. 1952. New York, Toronto: The Blakiston Co., Inc. \$3.75.

This book briefly reviews recent research results from different regions in the United States and offers practical information on pasture production management. The first eight chapters discuss the adaptation, establishment, fertilization, maintenance, management and nutritive value of pastures. Following this are individual chapters on pasture utilization and management for each class of livestock, including dairy cattle, beef cattle, sheep and goats, horses and mules, swine and poultry, giving pasture requirements for each in terms of kind of forage, quantity and acreage. Irrigated pastures, grassland pests, diseases and weeds are also treated in separate chapters.

The book is unique in that it has a chapter devoted to discussing pasture demonstrations

and contests, with examples of scorecards used in judging pastures. The book also contains a number of tables giving fertilizer recommendations by different states; seed rates and weights, feeding composition, and manurial values of many pasture and forage crops. A bibliography covering the more recent publications on pasture improvement by States should serve as a useful reference.

The text, tables, and reference material present a picture of pasture production and management practices necessary in a grassland program. While the book was prepared primarily as a textbook for students, it will be of equal value to the soil conservationist and extension worker as well as other agricultural workers concerned with pasture improvement and management.

—M. A. HEIN

PROCEDURE REVERSED.—Commercial concerns have spent large sums during recent years to promote soil and water conservation and to honor outstanding conservation farmers and soil conservation districts.

In September, however, the tables were turned. The Goodyear Tire & Rubber Co. of Akron, Ohio, received a "Distinguished Service Award for Outstanding Contribution to the Progress of Soil Conservation Districts."

This gift was made by the Golden Valley (N. Dak.) Soil Conservation District—a beautifully framed, 31- by 40-inch painting, "The Cowboy and the Banker," below which hangs a 6- by 34-inch bronze plaque on which the citation and the story behind the painting have been engraved.

The presentation came as a surprise. It was handed by the district supervisors to A. G. Morrill, director of the Goodyear Company's soil conservation awards program, during a luncheon program held at Bismarck to honor North Dakota winners for 1952. At a subsequent ceremony at Akron, R. S. Wilson, vice president in charge of sales, received the painting and plaque from Morrill.

The painting is the work of a widely known Badland artist, Einar Olstad. A local scene, it was painted a number of years ago after a conversation that Olstad reports he had with a rancher. His story, engraved on the plaque, follows:

"Riding out from town one day, I rode through an abandoned ranch—a one-time bonanza. The ranch site was in A-1 shape, with good shelter and abundant water, but not a cow track on the overgrazed range stretching to the eroded buttes on the distant horizon. Seeing a neighbor, I asked what was wrong with the ranch. 'Not a durn thing, pardner,' he drawled, 'jest too much credit.' He went on to tell how the former owner of the ranch had a method of his own.



H. L. Wenberg, district chairman, presents award to A. G. Morrill.

"In those days it was customary for the banker to drive his car to the ranch headquarters where the cattleman would furnish him a horse—an old hard-riding nag with a tight saddle'. They would ride around checking small bunches of cattle until the tenderfoot banker was 'riding the horn and cantel.' The situation ripe, the rancher would point out where the big herd grazed behind the distant range of buttes. Earlier he had mentioned that they would go and look the cattle over while 'the missus was fixing a chicken dinner.' The banker, tired, saddlesore and hungry, took the word of the rancher without making an actual tally of the cattle.

"The ranch became overstocked and fed-off. Overgrazing lost both the cattle and the ranch."

The supervisors of the Golden Valley Soil Conservation District—H. L. Wenberg, Chairman; R. M. Miller, secretary; Howard Hardy, and H. F. Dietz—report that the purpose of the award is to encourage Goodyear's continued assistance to soil conservation districts. These men have often declared that the help they received through the awards program, and the opportunity it affords to exchange views with outstanding boards of supervisors from other parts of the country, are very important.

But the award can also be regarded as a gesture of appreciation, since the Golden Valley Soil Conservation District was the 1951 winner in North Dakota. The supervisors and three outstanding farmers—Donald Hammond, Alan Akre, and Rhinehardt Fisher—enjoyed an all-expense-paid trip to the Goodyear Farms at Litchfield Park, Ariz. There they mingled with winners from other States and viewed the agricultural and conservation activities on the company's land.

—A. E. McClymonds

TO HELP YOUR DISTRICT.—One idea read in *SOIL CONSERVATION Magazine* can speed up the work of your soil conservation district. Any farmer may subscribe at \$1.25 per year by mailing check to Superintendent of Documents, Government Printing Office, Washington 25, D. C.



Junior High School
GOES TO CAMP

March 1953

Soil Conservation

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION•

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

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WELLINGTON BRINK
Editor

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CLOVER BOWL.—When the Geneva, Ala., Lions Club was looking for a name for their football bowl used for an annual game to raise funds for *sight conservation*, they picked "The Clover Bowl."

Clover has become popular in Geneva County as a result of its widespread use in farm conservation in the Wiregrass Soil Conservation District, SCS Work Unit Conservationist J. K. Howard reports.

Two outstanding Negro high school football teams vie for the area championship in an annual football game. The contest is preceded by a parade through town led by bands from the Alabama State College for Negroes and from nearby Camp Rucker. A special feature is a beauty contest, with entries from all nearby Negro schools, followed by the crowning of the "Clover Queen." A sign at the town entrance reads, "Welcome to Geneva, the home of the Clover Bowl;" it was erected by the Lions Club and the Geneva County Cattlemen's Association.

The event itself serves to encourage sight conservation, soil conservation, and good race relationships.



FRONT COVER.—Starting on a hike, led by Elizabeth Ellison, director of camping education, are these pupils of the seventh grade of the Greenville, S. C., Junior High School. Elsewhere in this issue is an article which tells of the unique method of teaching conservation at Camp Oolenoy, near Table Rock State Park. The photographer is Leon J. Sisk.

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Three Remarkable Years

The dramatic story of what happened in a Pennsylvania County when all major forces teamed together in spirited support of a soil conservation district

By HUGH F. EAMES

NEARLY all farm people in Columbia County, Pa., and many others, saw the need for more emphasis on soil conservation when young farmers, just making their start on the land, asked for the organization of a soil conservation district. A long-established and successful dairy farmer, moving into his sixties, backed them up with the statement: "I need it, we need it, and the county needs it."

The three county commissioners, acting under the state law, recognized the need, the weight of public opinion, and the young farmers' requests, when in January 1949 they officially declared: "Columbia County is a soil conservation district."

Before the district was formally organized in September of the same year, nearly one hundred farmers, representing more than a tenth of the



Contour strip cropping like this corn and hay on the Frank Kisner farm is an increasingly conspicuous trademark of the district's work in Columbia County. Before the strips, says Kisner, heavy rains resulted in streams of run-off deep enough to float a boat between house and barn. There's been nothing like that since the strips were installed. Conservation projects were important in winning the FFA American Farmer award for his son Paul in 1952.

county's farm land, backed up official action by requesting assistance from the district.

A governing body of four active farmers, and one county commissioner with business-executive experience, was named by the county commissioners, and almost everybody pitched in to help make the new organization click. Some who had been passive, or actively opposed, became good cooperators.



Air view of Northumberland County's Stone Valley, powerful silent salesman of soil conservation districts.



Harry Everett, vo-ag supervisor in Columbia and Montour Counties.

Now, after 3 years of work, nearly four hundred farmers, almost half of the full-time farmers in the county, are benefiting from the district program.

"Need for a district' is something that folks here don't talk about any more," County Commissioner Grant Miller observes. "What they are now saying," he declares, "is: 'Why didn't we get it before?' I think it is the best thing that ever happened in Columbia County agriculture and I wish it had been started when I was farming. Last year I went through a reelection campaign in which I never heard a criticism of district activities, but did hear lots of praise." Grant represents the county commissioners in the district governing body.

"In meeting 1953 farmers' needs, the district fits into the Columbia County farm picture, just like Bloomsburg's famous fair," says Walt

Lewis, farm news radio broadcaster at Bloomsburg. Throughout the county, because of his radio and other activities, he is generally recognized as the individual who has contributed most to establishment, organization and success of the district.

"We never hear complaints about its work, or questioning of its value, but from all parts of the county we do get reports from farmers who are benefited. Before the district was organized I felt that it might duplicate services already being provided. I have always opposed duplication. Now I know there isn't any in the work that the district is doing in Columbia County. It is accepted as part of Columbia's way of life"—thus comments Ed Schuyler, Bloomsburg Morning Press editor and an experienced independent observer.

Pointing out that the "repairing of all the damage done to Columbia County farm land, through the years before farmers had a county-wide organized soil and water conservation program, is a tough, time consuming job," Raymond J. Campbell, Granger, agricultural extension leader and highly respected and suc-



Raymond J. Campbell, successful farmer and long-time extension leader, a key man in bringing about the organization of the district.



L. Oscar Gelnett, secretary-treasurer, National Farm Loan Association and Production Credit Association.

cessful dairy farmer, emphasizes that "we can help every one of the thousand full-time farmers and perhaps five hundred part-time farmers, if they ask for assistance." This district director wishes that he could see the whole job done faster. But, he says, "I'm 63, and I doubt that more than half of it will be finished while I'm around."

"Of course that will be time well spent," he continues, "but too many farmers are too slow on the trigger in asking the district to help them get rid of their land headaches. Some of them say contour farming makes them turn around too often; others say it doesn't take as long. But, even should it take more time, that really doesn't matter because increased yields through contour farming more than pay the difference. When they fail to do something that pays them well for just doing it, I think farmers are 'slipping a link'."

Raymond Campbell really knows "how well it pays." He learned at his 125 Orangeville acres where he is a 100 percent district cooperator. He got started in conservation farming



Raymond Whitenight, vice chairman, is one of more than 50 war veterans who are increasing production and paying off their land debts as a result of help received through their district.



The district's most striking service to date has been to young farmers just making their starts on the land. Here is Winston Jarrard, who is reclaiming a farm run-down and about to be abandoned, proudly showing off some of his fine crop of corn.

before the district was organized. He has seen his corn yields jump from 100 shelled bushels per acre where his dad said they were "upper bracket" producers because they harvested 50 shelled bushels per acre. In the same period the average increased yield per acre in Columbia County had been 10 bushels. Where his dad got 15 bushels of wheat per acre, Raymond raised 25 bushels per acre in 1952, despite "a lot of fly." Normally his yield is about 32 bushels per acre. His oats yield has soared from 40 to 70 bushels per acre; was down to 25 in 1952, because of unfavorable weather.

He has cut his corn acreage in half, yet is producing more than he can use, and is selling surplus. With a larger dairy than he ever had before, he is producing all the hay, silage and pasture that he needs from about the same acreage that he used for grass when he bought hay. Last year he had the best and biggest grass crop in his career. He says it will do even better. For the first time in his years of operating there, he was able to make hay in a gullied area, where he had never been able to move equipment. As one result of his straight-across-the boards increase in production, his expenditures for purchased feed have been cut in half, he notes when he makes out his annual income tax return.

Raymond Campbell knows, of course, that better seed varieties and getting full values out of his fertilizer, lime and manure, do account for some of these production gains, but he says: "Most of them, come from conservation farming methods, better use of my land and the building up of soil fertility, and soil moisture that grains and other crops need so much in dry years. Moisture pays big dividends then."

Though he fidgets over the "slow advance," he gets a thrill when long-time farmers quit holding back and come into the district program. There is a current speed-up in this breaking-down process. Campbell says the district's new small watershed approach is the principal cause. It is found in neighborhood projects in which long established farmers often cooperate more readily and more wholeheartedly than they do in county-wide events.

Ten small Columbia County watershed programs already have brought 114 more farmers, who have 10,800 acres of land, into the district



Paul Shultz, dynamic 26-year-old chairman. He and his two brothers farm 363 acres near Jerseytown.

program. More than 170 farms, about 16,000 acres, will be directly benefited as a result. Hundreds of others will be helped indirectly. Much larger gains are promised all over the county because there are opportunities for almost 100 more of these local developments in which neighbors can work together to get the conservation job done.

District directors are pleased because some Columbia County banks, at the suggestion of the district, are making conservation farming an important factor when they take mortgages or make loans to district cooperators who are purchasing farms or making improvements that will increase their production. "A conservation farmer is a better risk because the investment in his farm is better protected our bankers tell us," the directors say.

They note, too, that Columbia County farm machinery and supply dealers are beginning to use the same measuring stick. "If I were a farm machinery dealer," Director Campbell observes, "and knew that a sales prospect is farming the conservation way, I would go a lot farther, lean backwards, in helping him swing the deal, because my investment and his investment would be more secure."

The district soil and water conservation and good land use program did not come to Columbia County over night. Conservation farming practices were first brought to Columbia County by the Extension Service and its county agents through educational programs and on-farm demonstrations. The first district seed was planted in late 1930's when representatives of USDA's Soil Conservation Service, came to Columbia and Montour Counties, spoke at Grange and other farmer meetings, and cooperated in demonstration work. By 1940, acceptance of the idea had spread so far that a move to organize a district was started in each county. It was unsuccessful in both, but around the hard core of farmer and public opinion that had developed in Columbia, the successful 1949 effort was built.

When Columbia district was finally declared, almost everybody stopped to enjoy a breather. For several months there was dragging of feet; opponents got busy. Then three strong agricultural horsemen decided it was time to move. Joining forces with Raymond Campbell who



Walt Lewis, a real spearhead. A radio broadcaster with a big following, Lewis was a vo-ag teacher in Columbia County and later had a fling at the insurance business.

was "itching for action," came Walter Lewis, a farmer vo-ag teacher of 19 years' experience in the area, then and now broadcasting a daily farm radio program from station WHLM in Bloomsburg; Harry Everett, Columbia-Montour vo-ag supervisor; and Oscar Gelnett, who represented National Farm Loan Association and Union Production Credit Association activities in Columbia and Montour. This trio stiffened the pro-district backbone, rounded up county-wide support and put district organization effort back on the tracks.

Before they were through with the enthusiasm of the campaign that reached every part of the county, the team was augmented in the big push by radio stations WHLM and WCNR in Bloomsburg, the county's two daily newspapers, the Bloomsburg Morning Press and the Berwick Enterprise; weekly papers like the Benton

Argus and Millville Observer; Benton and Mifflinville GI farm training classes; Young Farmer Associations Chapters; Leo. A. Miller of Millville and other vo-ag teachers; local cooperators in agricultural programs like PMA, FHA, NFA and PCA; farm machinery and supply dealers; individual Grangers, Future Farmers, vo-ag classes and many other elements.

Final victory stemmed from a meeting at WHLM studios to which Walt Lewis invited representatives of all agricultural organizations in Columbia County, together with newspaper people and county commissioners. Before a gathering of 50 persons, Mark Witmer, chairman of the neighboring Northumberland County Soil Conservation District and a successful farmer and agricultural leader, told how the district program had transformed erosion-riddled Stone Valley and other Northumberland County areas into productive paradises. He topped off his talk with an invitation to "come and see for yourselves" that was quickly accepted. What the visitors saw at Stone Valley and what they heard from its prosperous farmers and others, backed up everything that Witmer had told them. For the first time, many realized just how much Columbia County had been missing for years because it did not have a district. It was the knockout punch of the campaign.

Morning Press Editor Ed Schuyler was one of the converts there that day. This excellent newspaper had been rather on the fence; sometimes doubtful of the need for a district, and fearful of the possibility that a district might duplicate services already being performed for Columbia farmers. After the "look, see and hear" at Stone Valley, Ed went back to Bloomsburg and next day told Morning Press readers that a district would be good for the county. It helped a lot.

Schuyler likes to recall a little extra thing that impressed him at Stone Valley. It came when Farmer Earl Botdorf scooted up the grassy slopes in his car and told the visitors about his farm and what conservation farming had done for him. The speed and ease with which the car moved over contours and sod waterways convinced Schuyler that farmers have no difficulty in working land when they farm "on the level." Sometimes, Ed halfway hints that maybe Botdorf's spectacular arrival

was planned just that way. But really, Walt Lewis insists, it happened naturally. Earl wasn't putting on a show. As usual, he was simply in a hurry.

A few days after the visit to Stone Valley, the county commissioners received a list of agricultural leaders, from which it was suggested that they could make a good sound choice of five members for the district's governing board. Grant Miller, John Q. Timbrell and G. Clayton Welliver, the commissioners, named R. J. Campbell, Fishing Creek; Raymond Rarig, Numidia; Raymond Whitenight, Scott township, and Paul Shultz, Jerseytown, to serve with County Commissioner Welliver, of Bloomsburg.

These designations gave district representation and leadership in each major section of the county, and provided the sound judgment of solid, experienced farmers, Campbell and Rarig, to balance the enthusiasm of the comparatively young farmers, Shultz and Whitenight, representing vo-ag and GI groups, plus the broad business experience of Welliver. Ages ranged from the early twenties to the early sixties. To the surprise of Shultz, then 23, the other directors elected him chairman, a post that he has continued to hold for 3 years.

Profiting from the earlier let-down experience, the three horsemen immediately swung their whole campaign force behind the new district, started to push and also to round up recruits, primarily for the purpose of quickly acquainting farmers and the public with the work that a district does, and how its services are obtained.

Before they were through—and they haven't stopped yet—service clubs such as Lions, Kiwanis and Rotary; Millville's First National and other banks; Bloomsburg's State Teachers' College; Orangeville's Community Advertiser; Bloomsburg, Millville, Berwick and Catawissa High schools; Orangeville's Sportsmen's club, Mifflinville Mountaineers Club, and many other groups and individuals were helping enthusiastically. Jim Atherton, Mifflinville GI farm training instructor, insisted that all class members take advantage of district services.

Housenick Motor Company, Bloomsburg, presented a new terracer to the district when this organization was a year old, and later it was the first Columbia County organization to swing its help behind the country-wide conservation

program by becoming an affiliate member of the National Association of Soil Conservation Districts. Neil S. Harrison, Inc., of Bloomsburg, also has become an affiliate member of the national body.

The State of Pennsylvania joined hands with the district by providing the directors with the assistance of its Soil Conservation Commission, which helped them quickly and effectively to organize the program under provisions of the state law. Through memorandums of understanding, the commission also brought to the directors the help of USDA's Soil Conservation Service and the State Department of Forests and Waters, the State Game Commission, the State Department of Highways, and the State Fish Commission.

From the state the directors also received the helpful cooperation of the Department of Public Instruction with its vo-ag, FFA, adult and GI farm training programs.

The U. S. Department of Agriculture tuned in with its Production and Marketing and Farmer's Home Administrations. The National Farm Loan Association and its Union Production Credit Association swung into line with additional boosts.

Out of all this activity and encouragement, Columbia County Soil Conservation District—the twenty-third to be formed in Pennsylvania and one of its younger units—has become one of the outstanding and most progressive districts in 12 states ranging from West Virginia to Maine. Strong positive leadership, within and without the organization, has made it highly effective in helping old-time farmers as well as young fellows for whose benefit it was primarily created.

"It means a lot to us young farmers," says Winston Jarrard, World War II veteran who spent 10 months fighting in the Pacific. Fifteen years ago, the farm he is buying near Freeville, was "one of the best around here." Then it became run-down and unproductive through a period of tenant- and share-farming and near abandonment. With help of the district, he has worked 30 acres back into top production, largely through use of his own labor and equipment. He's carrying his third lot of 15 beef cattle, 800 layers and 200 broilers and 30 head of hogs, including 5 brood sows, and is looking to the time when he can handle 35 head of beef, 2,000



G. Clayton Welliver, one of the original members of the board of directors and a sparkplug for modern farming in Columbia County.

chickens and 50 hogs. He's producing oats, corn and wheat, and grass for hay, silage and pasture, and soon will have 20 acres of pasture-hay. Where he first grew 100 bushels of ear corn per acre with "not a decent ear in the lot," he's harvesting 150 bushels of ears per acre of as good corn as Columbia produces, and expects it to do even better. In Columbia County the average yield per acre is 55 bushels.

The Jarrards' position is much better than it was in early after-war years when he worked in heavy industry. Recalling that he always did want to farm, Winston says: "Without the district's help I just wouldn't have a chance to make good here. Nine out of ten young farmers, GI's like me, who are buying their farms, are having the same good experience."

Jarrard is particularly grateful for help that he gets from the four SCS technicians who work with the district in solving his land and water problems. They are housed at the courthouse where the county commissioners provide office space and utility services for the district.

Raymond Rarig, a Numidia farmer for 15 years and now in his late thirties, points out that "farmers usually find that they can do a lot with their own labor and equipment in boosting production on their farms when they have the guidance of the kind of specialists that our district offers." In emphasizing that the district helps "every farmer who asks for

assistance," he comments that "something seems to have changed the minds of farmers who thought the district could not help them. Guess it's what they are seeing happen on the land of district cooperators." On his 65-acre poultry, hog and dairy farm, Rarig has a complete conservation plan established as a good example for other farmers, just as all the other farmer-directors do. In 1952 he harvested 1,000 bushels of ear corn off 5 acres. He's secretary of the district.

Paul Shultz, Keystone Farmer through Future Farmers of America achievements, farms 363 acres in three farms, with two brothers, Leo and Clark. Paul says the small watershed program and cooperation by PMA have been especially helpful in district work. Team work with PMA has spread the program over the entire county. In school, all the boys were vo-ag students, Paul having been in Walt Lewis' classes. Largely through the boys' influence, conservation farming was started at the 213-acre family farm before the boys' father died. The sons have extended it to 160 acres in two additional farms as rapidly as they were purchased.

G. Clayton Welliver, one of the original district directors and one of the county commissioners who declared the district, as previously noted, is proud of the results and knows that no mistake was made when they gave it approval. Now retired and living in Bloomsburg, Welliver



Grant Miller represents the county commissioners on the district's board of directors.

saw a lot of Columbia County's fertile soil go down Fishing Creek during his 50 years of association with the Bloomsburg Water Works. He remembers how terrific was the toll of topsoil that runoff from storms took when the stream quickly soared 12 to 15 feet.

This loss can be measured accurately through what happened at the water works when he was in charge of filtration plant that purifies water drawn from Fishing Creek. Out of the stream's 53 million gallons' daily flow in the late twenties and early thirties, the water works drew 11¼ million gallons of water daily and put it through four 20 x 100-foot settling tanks for sedimentation. From these tanks in yearly cleanings were removed annually 15 railroad carloads of silt, mostly Columbia County topsoil. On this basis the stream was carrying 640 railroad carloads of silt in its total annual flow. It was a period in which soil conservation practices were just coming into use in the Fishing Creek watershed.

There has been a big change in the picture in the 19 years that have since passed, according

(Continued on page 187)



Raymond Rarig

Women Find Careers on the Land



Dot Lassen entered dairy farming soon after she completed training to be a nurse. First she tried 60 rented acres, then the old 100-acre home farm at Cheshire, Conn. On the latter she has developed 60 acres of tillable land and soon will have 35 more, to support 30 Guernsey milkers and a retail bottled-milk trade. A strong land-use program based on the rehabilitation of worn-out and cropland acres for grass production has been the key to her success. Since 1946 her herd has been among the year's 5 top producers—twice at the top—in her local DHIA.

WOMEN who have sole responsibility for managing and operating farms take to conservation farming as readily as to the making of a new angel food cake.

When they turn to this way of farming to overcome land problems and put their acres on a profitable basis they have the patience to stay with it and make it work. They don't expect miracles overnight.

In this way many women have turned abandoned acres into lush productiveness. They have picked up and carried on interrupted operations. They have courageously assumed strange responsibilities on becoming widows. They have wiped out indebtedness and paid off farms, and supported and educated children.

Women's natural desire to create, and their inclination to seek out and follow suggested new patterns, have been important factors in their

success. Education in fields far remote from farming sometimes has become a strong asset. The absence of a rural background and the lack of skills in such highly specialized operations as dairying, fruit growing, seed production and cattle breeding, have not proved to be unsurmountable barriers.

Such women use their local soil conservation district, with its complete or basic conservation plan, just as they use a new recipe. By following the minutest detail, they learn through experience that a little variation—a pinch more, here, a bit less there—helps them get exactly the results they want. They give their "land" recipe a fair test.



Anne B. MacLaren, of Durham, Conn., was educated for a nursing career. She has built a 1-cow dairy enterprise up to a 70-head registered Jersey herd that has won her renown as a breeder. Without the help of a hired man, she has turned 105 run-down acres into lush grassland. Two daughters assist her. Fellow dairy farmers regard her as one of the best "cow men" in their part of the country. She is also town assessor.



Ruth Trost Welles graduated in piano at the New York Conservatory and voice at Carnegie Hall. In 5 years she has put lush grass on 76 acres of a croplless 100-acre farm near Coventry, Conn. With a herd of 27 milkers, her bill for purchased feed is less than half what it was when she had only 19 head. She is the widow of the grandson of Lincoln's Secretary of the Navy. She got her start in conservation farming by reading Bromfield's books.



Mary B. Carnes, pre-med and clinical laboratory technician, has a 40-acre week-end hideout near Glenwood, N. Y. Here she has a dairy of 30 Holstein-Friesians which produces 300,000 pounds of milk annually. A former leader in the Federation of Women's Clubs and the University Women's Association, she got her start by building 125 acres of worn-out, abandoned land to top production through good land use.

On these pages are pictured a few women farmers of the northeastern states. They range from 25 to 86 years old. They abandoned other careers, when the chips were down, and began to work with the land, with or without the help of a hired man, and without the guidance of a manager. As individual accomplishments they have—

Built more than 100 acres of birdsfoot trefoil seed production and are working toward 250 acres - - -

Developed a secluded 40-acre week end hideout into a thriving 125-acre dairy farm with 30 head of registered Holstein-Friesians producing 300,000 pounds of milk annually - - -

Turned a 165-acre dairy farm into a highly productive and efficient fruit-growing enterprise and won high county, state and national honors for agricultural and rural life leadership - - -

(Continued on page 191)



Genevieve Reddish, 25, of Delmar, Md., college trained to teach, has piloted her 300-acre farm to top production with the help of modern equipment backed up by a strong maintenance program.



Helen Eaton, left, formerly taught school. Louise Starr was a telephone operator. Now they operate as partners a 500-acre farm near Cassadaga, N. Y. With never a hired man, they have built a cup of birdsfoot trefoil seed into a seed-production business involving more than 100 acres—and are still expanding the enterprise.



At 86, Evalyn Gatchell, successful fruit grower at Alton, N. Y., is still doing all the farming that neighbors 26 years ago said no woman could do. After a teaching career, she first tried dairying and then turned to fruit, while reclaiming a run-down 165-acre family farm. She has won high county, state and national honors in Farm and Home Bureau and 4-H Association and rural life leadership.

Junior High School Goes to Camp

By J. W. BURDETTE



These boys learn first-hand about woodland improvement.

LEARNING about conservation can be fun. That's the way some 200 seventh grade boys and girls from Greenville Junior High found it on their recent 3-day visit to Camp Oolenoy.

Next to Table Rock State Park in the midst of a beautiful natural setting is a 20-acre tract of land which is becoming an outdoor laboratory for these students. The conservation camping trip is an integral part of the school program—an indication of the new direction being taken in public education in South Carolina.

Under the supervision and leadership of Elizabeth Ellison, home room teacher, 30 to 40

pupils visited the camp each week during last fall. Starting next spring, other groups are on the schedule, so that by June some 600 boys and girls will have visited the camp. At the present time, Greenville Junior High has the most extensive school camping program of any school in the state. Miss Ellison received special training for this work. She received her master's degree in school camping and outdoor education from New York University in 1951.

At her request, the supervisors of the Upper Savannah Soil Conservation District are arranging for Soil Conservation Service technicians to prepare a plan for the best use of each acre of land in the camp area. The plan provides for planting shrubs, grass and legumes used in conservation programs in the Piedmont section of South Carolina. It will also show how



J. W. Burdette, the author.

Note.—The author is head of educational relations, Soil Conservation Service, Spartanburg, S. C.



Cena McCurry, teacher, explains how soil is formed from weathering of rocks.

land is classified in the district soil and water conservation program.

Prior to this year, seventh grade classes made all-day trips to Paris Mountain State Park. Now that overnight facilities are available at Camp Oolenoy, each group spends two nights and three days in this fresh and exciting part of their school program.

A valuable feature is the preparation which goes on days ahead of the actual trip. The class is divided into committees, and assignments are made which enable each student to do a share of the work. Cooperation and group living provide a new and pleasant experience.

Home room teachers attended a 5-day pre-school conference on this phase of work last

August. They went to the field and saw at first-hand the many opportunities available for teaching science, conservation, biology, and related subjects. Consultants and resource people met with the teachers and explained the services available from their agencies. Teachers were quick to see the new possibilities for enriching their school program.

Soil Conservation district supervisors in Pickens County already have recognized the many teaching opportunities afforded and have requested permission for classes to visit the camp next spring.

Evaluation reports submitted by parents and students indicate that this part of schooling is being favorably received. Students are happy

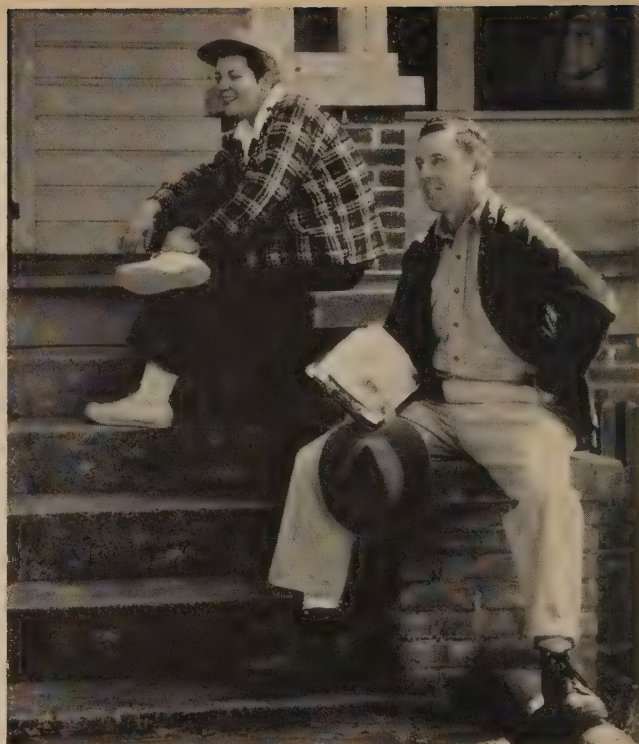
over the new approach to learning. They are discovering the extent of this country's resources and the destruction wrought by mismanagement and carelessness.

Examples of soil erosion, stream pollution, evidences of the destruction of food and cover for wildlife, and poor woodland management are to be found within hiking distance.

An important part of the work is to assist boys and girls in developing a sincere respect and appreciation of Nature and her laws. Many opportunities are available to the class to see or take part in the application of theory learned in the classroom.

Elizabeth Ellison, director of camping education, with F. G. Lindsay, of the Soil Conservation Service.

Seventh grade lassies try their skill at making blue-prints.



THREE REMARKABLE YEARS

(Continued from page 179)

to A. Roy Girton, present pumping engineer at the water works, where the same 4-settling tank system is still being used. Seventy-five percent *more* water is being drawn from the stream but there is 60 percent *less* silt in the settling tanks. The water works is pumping 2 million gallons of water from the stream every day, but there are only nine railroad carloads of silt to be removed from the settling tanks every year. On this new basis 213 railroad carloads of silt are now annually carried down the stream, as contrasted to 640 railroad carloads in Welliver's years at the waterworks.

"It means that conservation practices on Fishing Creek watershed farms are sharply reducing topsoil losses. Our district program is protecting, and will continue to guard what is left," Welliver proudly declares.

Harry Everett, Columbia-Montour vo-ag supervisor, who directs the work of 7 teachers with 240 pupils in 7 of the county schools, and 4 teachers with nearly 80 GI ag trainees in 3 Columbia schools, says: "Results from the district work already are better than we had expected for these early years. The district has reached into and become highly helpful in all parts of the county and eventually will blanket Columbia with its good influence. Its greatest single service so far is in assistance that young farmers have received. While county newspapers and radio stations, schools and others are doing a bang-up good job in education and information, many more farmers need to get acquainted with the help they can get from the district. The best agricultural program that can be organized is not too good for Columbia County. Our district is doing a very necessary job, helping us carry the second mile."

In the late fall of 1952, a powerful reinforcement for the educational effort was sought from a new source, when the district directors requested Ray M. Cole, county superintendent of Columbia schools, to consider conservation education for use in the county grade and high school curriculums. Later, through his request, the district supplied guides which he distributed to teachers with instructions for integration. This decision came as no surprise to those who had requested this action because farm-born



One of the many ponds built by Columbia district farmers. This one at Carl Ivy's place, has well sodded and well kept banks, and was developed from a wet corner in a pasture.

Cole is an alert and progressive educator, a former vo-ag teacher and a long-time soil and water conservation enthusiast. He heads a system in which there are 254 teachers with 7,000 pupils.

This development also points up the alert and progressive leadership in the Columbia Soil Conservation District governing body. Many such directors limit their conservation education activities to vo-ag boys in high school, but Columbia's directors think that it is more important to make the start in kindergarten, with the 5-year-olds of both sexes, and prepare them, through all grades, to absorb the solid material that comes to them in high school years. Boys and girls, systematically prepared groups between the ages of 5 and 10, will make better students and adult conservationists than those who start to get the material when they are 11, the district directors believe. By his action, the county's education chief seems to agree with their opinion.

L. Oscar Gelnett, one of the original three-horsemen who pushed the district organization through, has since been transferred to Farm Credit's operations in Northeastern Pennsylvania. He was happy over the progress of the Columbia Soil Conservation District when he looked back over its development the other day, and remarked:

"We people who are dealing in Farm Credit do give a lot of consideration to a loan, either on personal property or real estate, to the folks who are carrying out soil conservation practices which the district recommends. We find that these people not only become better farmers,

but our loans are based on long term values and we can put more dependence in these farmers to repay their loans as agreed. Our loans are based on income from the farm. The Columbia district certainly has been beneficial to the farmers in obtaining additional income."

Raymond Whitenight bought his farm when he was in the armed services and took over as quickly as he got home. He's one of the veterans who received GI farm training, and is a district director. "It took Columbia county farmers a long time to get started with a district, but now we're really rolling," he declares. He points to more than 50 veterans who are being assisted by the district; gets a kick out of finding among cooperators some farmers whom he had never expected to see there.

When you talk about Columbia Soil Conservation District with almost any informed person, the discussion usually swings to Raymond Campbell, who has been described by Paul Shultz, the young chairman, as a "63-years-old farmer who has all the get up and go that most people have when they are in their twenties, and who is right up on his toes making best use of all practices that 1953 farming calls for." Others have referred to him as the rock to which

the district is anchored and from which it spreads its good services all over the county.

Looking over the situation the other day, when the district was opening its fourth year of operations, Campbell said:

"Without the young farmers—GI's and vo-ag'ers—and the wholehearted teamwork of so many fine people and helpful organizations, we just wouldn't be making the showing that is piling up. Without the district, most of the young farmers, particularly the GI's, wouldn't be paying for the farms they are buying through increased earning power there. And don't forget, the district is also helping a lot of farmers who have been on the land nearly as long as I have, maybe longer. We need to bring more in by stepping up our information and educational work, because Columbia County Soil Conservation is a good deal all over the county. Almost everybody who knows about it, is for it. Teamwork is making it succeed."

FINDING THE NATURAL GROUPS.—Elmer Miller, farm planner for the Freeborn (Minn.) Soil Conservation District has a new method of locating neighbor groups. Elmer clips news stories of birthday parties and keeps them on file. Thus, he has a good idea of the people to work with.



Three years ago this land was in second-growth pine. G. Raymond Whitenight cleared, plowed, limed, and seeded it to alfalfa, ladino and smooth brome. It was also fertilized at seeding, and top dressed after the first year. First cutting of '52 hay yielded 1½ tons per acre. The second crop, glimpsed above, was pastured in September. First-year production paid for clearing, treatment, seed, and all other work

Wild Geese Help Wheat Yields



By I. T. QUINN

FARMERS often complain that geese are playing havoc with their wheat and it is natural that they should become alarmed when great flocks of Canada honkers descend upon their fields and graze day after day. A revealing experience has come to light which shows that the feeding of geese in the winter months greatly helps the wheat.

Three fields of winter wheat were planted on the Hog Island Waterfowl Refuge in Surry County, Virginia, for the purpose of attracting geese. Result was that about 2,000 Canada geese stayed on the property throughout the winter, although in the past geese seldom visited the area. These three fields consisted of about 20 acres each. Character of the soil was pretty much the same and the same treatment and commercial fertilization were used on all three fields.

The flock of geese used one of these fields mainly for their feeding, a few hundred of them used another field to some extent, and none of the geese fed in the third field. When the weather warmed in the early spring, it was easy to see that the wheat in the field which was most heavily grazed got off to the best start.

The harvest told an even more vivid story. When the crop was harvested, the field on which the 2,000 geese fed regularly made an average yield of 33 bushels to the acre. The field where the lesser number of geese fed brought a crop averaging 25 bushels to the acre. The field which the geese neglected entirely brought only 18 bushels to the acre.

While a great many of the river-bottom farmers have realized that the grazing of geese

during the winter helped their wheat, this experience at Hog Island provides concrete proof. It also indicates to what extent the geese were beneficial. The yield of 33 bushels to the acre on one field and only 18 on another, can be attributed directly to the presence of the geese.

Geese graze on the blades of wheat very much as cattle graze on grass, with the root stocks little affected. The droppings of thousand of geese day after day added substantially to the fertility of the soil and the benefits derived from the presence of the geese showed up clearly in the difference in yield at harvest time.

While engineering work at Hog Island is leading to greatly increased supplies of duck foods, not enough has yet been done in the production of aquatics to show a great deal of difference in the number of ducks. But at least 2,000 Canada geese used the area last winter, attracted by the plantings of wheat for their benefit. Greater areas will be planted in wheat this year and it is a virtual certainty that even more geese will find refuge there next winter.

It was quite remarkable that on the fields at Hog Island where some 2,000 geese fed regularly, there was one of the best crops of wheat in Surry County.

POND GUARDS VILLAGE.—The inhabitants of Lowell, a small village in Oneida County, N. Y., have solved a community problem by getting together with the Oneida County SCD and building a farm pond that protects the homes of its 21 families. They chipped in to pay most of the \$300 cost. Farmer Lawrence Grimes started the project rolling, soon after a small fire had threatened the village, by offering to donate a site on his farm, at the edge of the community. It was quickly accessible to fire fighting apparatus.

Citizens, who had been unresponsive to a similar opportunity a few years ago, got together this time and hired an engineering company engaged in road construction to do the excavating, spread the spoil and cover it with topsoil.

Now the community is guarded by a pond 80 feet square and 6 feet deep. It holds enough water to keep two pumpers going for at least 2 hours, which is sufficient for any need likely to arise. The water comes from high water table and springs.

Note.—This article by the executive director of the Virginia Commission of Game and Inland Fisheries is reprinted by permission from *Virginia Wildlife*.

MINNESOTA FARMS FROM THE AIR

By RAY BROWN

IN Minnesota the soil conservation air tour has been useful as a means of public education. Based on encouraging reports from Ohio, tours were undertaken at 5 points during 1951. Eleven districts were represented and 684 persons were carried.

Last year 10 more tours were held in southeastern and central parts of the State. Nineteen districts participated in these and 1,444 fare-paying persons were flown. In addition, 66 newsmen and agricultural officials went along as guests.

The areas involved ranged from steep, gullied hills where contour stripping, terraces and drainage structures are common, to flat, sandy-loan plains which feature wind strippings and tree planting.

Success of the tours was made possible by cooperation of soil conservation districts, the University of Minnesota Extension Service, the Minnesota airport operators, the Flying Farmers Association and the State Aeronautics Department. Tours were of about 30 minutes length. Each tour covered about 50 miles of route laid out to show problems and practices involved. The cost to each passenger ran \$3 to \$3.50.

After flights, most passengers were found to have been more forcibly impressed by the large areas of land in need of protective treatment than by the relatively few farms on which good conservation practices were in effect.

We believe that the soil conservation air tour is one of the most effective means of "selling" conservation, not only to farmers but to the press and many other interested segments of the public. Evidence of this is the fact that nearly every district holding such a tour in 1951 and 1952 plans to repeat in 1953. In addition, several Minnesota districts plan to conduct their first tour this year.

Note.—The author is aviation representative, Department of Aeronautics, State of Minnesota, Holman Field, St. Paul 1, Minn.

IOWA WOMEN AND CONSERVATION.—Farm wives in Marshall County (Iowa) Soil Conservation District are getting a better understanding of the benefits of soil conservation through a joint program undertaken by the Soil Conservation Service, Marshall County district, and the Marshall County extension service. Mrs. Greta Bowers, county extension home economist, helped to plan the program.

The idea was first presented during a county-wide meeting of 18 township women chairmen. These chairmen took the proposed program back to their respective townships, and at a later meeting of the township leaders it was decided to carry out the project in each township during October.

Each chairman was given a list of two or more farms in her area which had conservation practices. It was her responsibility to arrange for a meeting and tour of one of these farms.

At each of the meetings, the importance of conservation and its benefits were discussed and suggestions



H. Howard Oak, technician, explains practices on farm of Corwin Springer, district chairman.

were given on how women can influence a greater participation in the conservation of soil. A series of slides picturing local erosion problems and conservation practices were shown. Local slides were used because the women were familiar with the conditions shown. The organization and purpose of the Marshall County Soil Conservation District were discussed, emphasizing that it is "your district," not a State or Federal organization. Last, a tour of the farm was made to observe conservation practices. The farmer did most of the talking on these field trips. A majority of the farm tours were made with a wagon hitched to a tractor.

Success of the new program seems assured by the enthusiasm that has been shown. Women have a natural interest in the welfare of future generations and will work willingly to improve conditions for themselves and their families.

—H. HOWARD OAK

TEACHERS SEE WATERSHED

By G. STERLING OTIS

STONY Brook watershed in New Jersey's Freehold Soil Conservation District, has become a training ground during the past 6 years for more than 250 teachers who study soils, land use capabilities and soil conservation at the New Jersey State Teachers' College Conservation Workshop at Trenton.

Two 1-day tours of watershed farms have been voted the best in the annual 14-day course in which all conservation groups in the state participate.

The work has been directed by Dr. Victor L. Crowell for 5 years. Stony Brook watershed is ideal for studying soil losses from erosion, and the benefits that come out of soil conservation practices. Crowell arranges with Soil Conservation Service technicians for two 1-day tours in July.

In 1952, the party, traveling by bus, met in the morning at the Charles Cox farm, Penns Neck, where contour strip cropping, with emphasis on corn crops, was studied. A little later

a stop was made at Princeton University's crew house on Lake Carnegie, where soil losses from the watershed, represented by siltation, were shown in detail. Most of the class members carried their lunches and stopped to eat at a park near Pennington.

After lunch, they studied a complete conservation farm plan, fully installed at the Curlis Hart 100-acre dairy farm. Here they learned about terraces, crop rotations, and farm pond management.

At a stop near Hopewell the interest centered on the farm woodlot, where a profile revealed the different layers of forest litter.

The final stop put the class down at the VanZant family farm, at Blawenburg, where a state-wide, 1-day "face-lifting" attracted 8,000 spectators 3 years ago. The teachers "walked out" the complete plan, heard the story of what was done and observed the results of the effort. Here they also had an opportunity to contour lines with hand levels and terrace lines with tripod levels.

When the teachers come out of the workshop with credits in conservation, they possess a better knowledge of how and what to teach. They know how and where to get technical instructors to lecture in class work and help plan and conduct farm tours.

WOMEN FIND CAREERS

(Continued from page 182)

Transformed a 300-acre clay flats area into a farm that annually markets 2,400 bushels of grain and 1,900 bushels of soybeans, plus hay, dairy, poultry and meat products - - - Become widely recognized in dairy cattle breeding - - -

Restored 100 cropland acres, idle through many years, to a grassland dairy operation that has won high state green-pastures contest honors.

They have done all this like other farmers, by working in the fields and barns and with motorized equipment, and by doing such jobs as being midwife to dairy cows, climbing to the tops of silos to adjust gear when it got out of kilter, using dynamite in clearing land, saving 150 apple trees by bridge grafting in orchards, as well as the everyday jobs that are

Note:—The author is a Soil Conservation Service technician working in Mercer County, N. J., with the Freehold Soil Conservation District.

common in agriculture. All are cooperators with their local soil conservation districts. Before farming, they had made starts on careers in teaching, nursing, telephone operating, premed and clinical laboratory techniques, and the professional concert stage.

OLIVE SITUATION SAVED.—It would be hard to find a happier farm couple than the Joe Cooks of California's Corning Soil Conservation District.

Up to last spring, Joe had three acres of wet land smack in the middle of an olive orchard. Once he got



Mr. and Mrs. Joe Cook smilingly review results of their farm conservation plan with George Edmundsen of the Soil Conservation Service.

a neighbor to haul his tractor out of a wet hole. When he planted a piece of the waterlogged land to olives, the trees soon drowned out. Joe wasn't pleased at the way things were going.

But all that has changed. There's not a lick of wet land left. Last summer he had 200 new olive trees, plus 100 replacements, growing on the land he couldn't have crossed with a plow before.

Through his district he obtained help from Soil Conservation Service technicians. They made several borings on Joe's land and located two springs at the top of the slope which were causing the trouble. The flow wasn't heavy enough to force a channel through the orchard, but enough water came to the surface to keep the top of the ground wet month in and month out.

By the end of April, Joe had installed two 6-inch tile drains—one 900 feet long, the other 200. He had to do much of the ditching by hand because the soils were too wet for a ditcher.

The wet land dried up in a matter of days and was soon ready for planting. Although the springs run fairly steady the year around, Joe doesn't expect any

more trouble from them. The flow is so good from one of them that Joe plans to furrow-irrigate 5 acres down below. The well that has been furnishing water for this area will go on a standby basis. Two other wells will irrigate higher ground.

—HERB BODDY

SIGNATURE SONG.—The American Song of the Soil has become a sort of theme song for soil conservation programs over Radio Station WRHI, Rock Hill, S. C., following its first presentation over the station last fall by three senior students of Winthrop College.

The students, shown below, were Miss JoAnne Holladay, of Brunson, S. C., and Miss Nancy Mackie of Granite Falls, N. C., Miss Mary Lou Hiott at the piano. Bill Beatty, of the radio station, liked the song so well that he had a recording made for future use.

Vernon Grant, a supervisor and chairman of the education committee of the Catawba Soil Conservation District, interviews a district cooperator each week over Station WRHI, and the American Song of the Soil is used in connection with these broadcasts.

The lyrics for the song were written in 1941 by Walter A. Groom, of Grand Junction, Colo., a conservation farmer and former president of the Colorado Association of Soil Conservation Districts. The music was written by composer Del Yandon, of Station KXLY, Spokane, Wash. It was first presented on the air by Clyde and Pal, hillbilly singers, over KXLY in 1950.





April 1953

Soil Conservation

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION•

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
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Editor

BASIS FOR LOANS.—Outside agencies continue to show an increased interest in land use capability maps. Michigan's state conservationist, E. C. Sackrider, recently had a call from the rural loan representative of the Prudential Insurance Company, who was new in the community. He wanted permission to review the farm plans of people requesting loans from his company. He had found the plans in another state very helpful. The capability map, he explained, makes appraisals possible without walking over the farm.

INDEX TO BETTER FARMERS.—An insurance man in Fergus Falls, Minn., in the West Ottertail Soil Conservation District, watches the local paper for names of new cooperators with the district and calls on these farmers to discuss their insurance needs. He says this plan puts him in touch with the most progressive people.



FRONT COVER.—Spring comes to Mount Vernon. This fine photograph of *Rhododendron calendulaceum* was made by William R. Van Dersal at the famed Virginia home of George Washington, one of the great pioneers of soil conservation.

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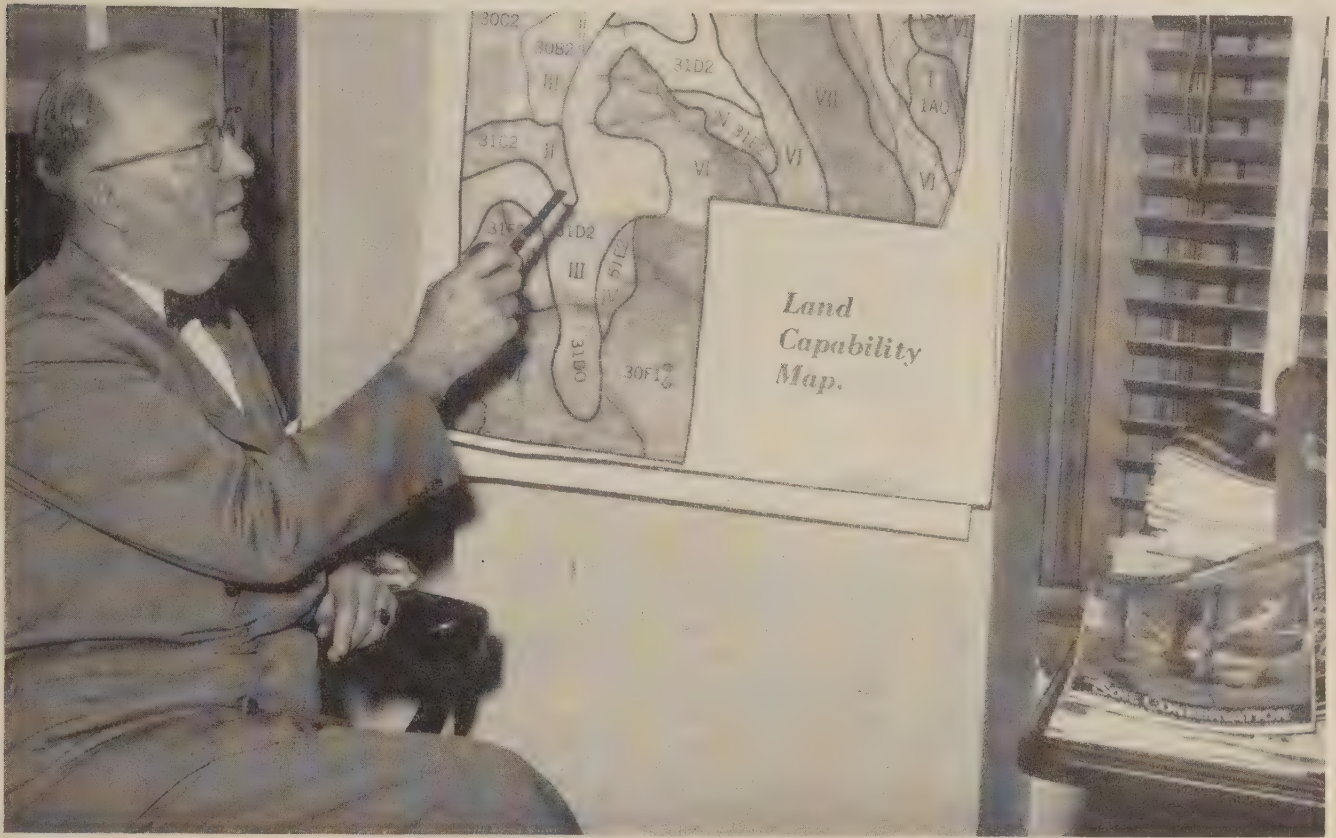
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Survey of Our Soil Resources



In this important statement, the Chief of the Soil Conservation Service explains the recent move to improve the mapping of America's farm lands.

By ROBERT M. SALTER

NOT so many years ago, few people besides soil scientists themselves were concerned with the survey of our soil resources. But today we find a growing and understanding interest in soils and what they mean to farmers, businessmen, educators and others.

This is a healthy development, because productive soil is essential to all of us. Just as we cannot live without air or water, neither has man yet devised any adequate substitute for the soil in producing the major part of his food and many other essentials to his very existence.

Although soil spreads continuously over most of the earth's land surfaces, it is really made up of many individuals. These individual soils vary one from another just as one kind of plant differs from other plants or one kind of animal from other animals. Even in a single state there are several hundred different soils. It is not uncommon to find 6 or 10 different soils on a single farm. In the United States several thousand individual soils have been identified.

Each kind of soil usually occurs in a number of separate areas. Each area has an upper boundary which coincides with the surface of the land. Each has a lower boundary at the

depth to which living forces are effective. Each has an outer boundary where it joins other soil types. Areas of individual soils commonly form a mosaic or patchwork. Each kind of soil can be defined by describing a typical profile, the deviations from that typical profile, and other features such as slope and stoniness.

A profile, as you all know, is a vertical section down through the soil to a depth of several feet consisting of layers, one below the other. The nature or arrangement of these layers, or horizons in the language of the soil scientists, are important to root penetration, to moisture storage in the soil, and to the amounts and availability of plant nutrients—to illustrate some ways in which they affect plant growth. Moreover, the nature and arrangement of the horizons reflect the past history of the soil.

Soils differ from one another in varying degrees. Some are as closely related as are the different species of pine trees, whereas others are no more alike than are a pine tree and a corn plant.

We may go from the red and yellow leached soils of the cotton belt, naturally low in fertility but with large potentialities for production under modern scientific management, to the black soils of the spring wheat region in the northern Great Plains, some of the naturally most fertile soils in the world. This range can be enlarged further if we include the soils formed under evergreen forests in Maine and those formed under desert shrub vegetation in Arizona.

The kind of soil at any place depends upon its history, especially its natural history. The amount of rain that falls each year, the hours of sunshine, the kinds of plants that grow there, the slope of the land are all important to the kind of soil in any given place. Scientists have long recognized five principal factors in soil formation: these are climate, living organisms, topography, parent rock, and time. Each soil under natural conditions is a result of a particular combination of these five factors. Each possesses a particular combination of characteristics.

Each kind of soil has a certain range in its use capabilities—narrow for some soils and wide for others. The capabilities of soils for use differ both locally and regionally.

Along with their differences in use capabilities, soils are also unlike in management requirements. The tillage, fertilizer, and water control

practices in the growing of vegetables on muck in one locale are much different from the fertilization, irrigation and other elements of management in the growing of oranges on fine sand in the same or another area. These, in turn, differ much from methods used to establish and maintain improved pastures in still another soil. Throughout the country the ranges in management requirements for the thousands of soils vary amazingly.

When we use soils we change them. We clear the forest or plow the prairie. We drain the wet soils and irrigate the dry ones. We tend to lower fertility levels in the rich soils and raise them in the poor ones. We have allowed soils to erode and wash away, with formation of spectacular gullies in some places. By and large, we tend to reduce or eliminate the natural differences among soils as we continue to use them for production of crops, pasture or forest.

Our main interests in soils rests on their capacity to produce plants we need for food, fiber, and shelter. As the population of our country grows, we shall need larger and larger amounts of food and fiber. Production of those essentials must come from our soils, largely the ones we are now using.

Long-time high levels of agricultural production are therefore necessary for the general welfare of our nation. The welfare of all of the population is thereby linked, whether directly or indirectly, to the use and management of our soil resources. Wise use and management is essential, and to that end we must know our soil resources as fully as we can.

In our agricultural research and through the experiences of farmers we have developed a great store of information on how to use different soils. This store of information is still growing. But we cannot repeat these experiments on every field. Some way of extending information on the management requirements of a soil from the site of the experiments to the farm fields where it may apply is needed. The purpose of soil classification is to provide a sound basis for this transfer of information about soils.

This transfer of information from one state to another is most efficient when there is a nation-wide system for defining and classifying soils. Another advantage of national coordination rests in the use of soil maps to provide nation-wide inventories of soil resources.

Population estimates for 1975 indicate expanded needs for the products of our soils. Will we be able to meet these needs? What production techniques are going to be most effective in different parts of the country in obtaining increased production? Where can we look for potentially responsive soils, where the application of research findings can create new production? The answers to these and similar questions will depend on a national inventory of our soil resources, made in such a way that the soils of various parts of the country can be compared, and their similarities and differences established.

Nation-wide systems of soil classification are also needed in order to guide public investment in land development and reclamation activities. Will we get the most for our money from developing new irrigated lands in the arid sections or from clearing and improving some of our southeastern land that is now unproductive or marginal? The answer to this question lies in a large part in accurate predictions of how the soils of the areas in question will produce after the proposed development. Such predictions as these are made through comparison of the soils of the areas in question with those of other places where similar developments have been tried. These comparisons are best made when soils of the different parts of the country are mapped, described, and classified according to a standard system.

Soil classification has many other uses in addition to its use as a tool in applying research findings to farms. The highway engineers are using soil types as a basis for cataloging their information on engineering properties and subgrade characteristics of soils. They frequently find soil maps to be very useful in predicting the engineering problems of new highway construction.

The county assessor of Polk County, Iowa, has just finished a revaluation of the rural lands in his county, based on a recent soil survey. Here, the soil scientists supplied a map showing the distribution of different soils on each farm, and in cooperation with specialists in agricultural economics they gave a relative rating to each soil. This rating was based on the predicted production under the agriculture of the county. The assessor then worked out his valuations, which included consideration of location values

and improvements.

The first organized mapping of soils in the United States began in four widely scattered areas in 1899. Three two-man parties comprised the field force which mapped areas in Maryland, Connecticut, Utah, and New Mexico that summer. From that modest beginning a continuing program has provided maps for approximately 1600 areas during the past 53 years. In the first surveys, attention was given to the possible uses of soils and also to their productivity for various crops. Early in the course of work it was recognized that surveys were being made to classify and correlate soils, determine their distribution and extent, and learn their adaptations for crops.

Careful study of the classification and mapping of soils from 1899 to the present time shows that the work clearly reflects the state of knowledge in the soil science of its day. The classification of soils at any given time can only be as good as what is known about them. Over the years the classification and mapping of soils has slowly changed as the knowledge of soils and their behavior has grown.

A major part of the results of the national soil surveys has appeared in the series of soil survey reports published by the U. S. Department of Agriculture. Approximately 1,600 soil surveys have been published over the past 52 years with the majority of them being at least 25 years old. Many of the reports therefore summarize what was known about the soils of an area prior to 1930.

Changes in the form and content of soil survey publications have accompanied the changes in classification and mapping. Some of the present-day maps are three to eight times as large for the same unit area as were the maps of 25 years ago. Common scales for publication are now 2 inches per mile, with a few maps being issued at smaller scales and a fair number at larger scales. The general scale of soil maps 25 years ago was 1 inch per mile.

Modern soil maps carry up to 16 times as many miles of soil boundaries as did those of yesteryear. Moreover, the reports nowadays provide far more specific information on the use capabilities, management requirements and probable crop yields for the individual soil types and phases. Approximately one million square miles in the United States have been cov-

ered by soil surveys of various kinds during the past 53 years. Of that total, at least one-third and probably nearer one-half, consist of older surveys which have only limited usefulness in meeting modern agricultural needs.

The rate of progress during the recent years has been approximately $5\frac{1}{2}$ million acres annually, with roughly three-fourths of this total comprising detailed soil surveys and the remaining one-fourth reconnaissance surveys of various kinds.

One of the first techniques to be used by the Soil Conservation Service in its job of getting conservation on the land was the use of a soil map as a basis for planning the soil conservation program on each farm. As the work progressed, the soundness of this decision to use soil maps as one of our principle tools has been demonstrated again and again. It seems very likely that the technique of basing farm plans upon a soil map may prove to be one of the important contributions of the Service to American agriculture.

Inasmuch as soil maps are such a vital link in our program for applying technology to farms, a soil-mapping organization was developed within the Service. This has provided for the most effective coordination of mapping and planning activities.

As the work progressed and became nationwide in scope, it became evident that some grouping of soils according to their capabilities for use and their needs for conservation practices would help in coordination of the work. The use-capability classification was developed to meet this need.

This classification is a grouping, for a specific purpose, of the various units delineated on the soil maps. Eight classes are used, with Class I representing soils that can be cultivated intensively, with little or no danger of erosion or other permanent deterioration. Class II, III, and IV can be cultivated, but hazards requiring special practices for the prevention of permanent deterioration increase in severity from Class II to IV. Classes V, VI, and VII are not suited for cultivation, but may be used for pastures or forest production. The difficulties encountered in using land in these classes for pasture or forestry increase in severity from Class V to VII. Class VIII represents lands limited in their use to wildlife habitats or recreational areas.

Within all these classes except Class I, subclasses are established according to the nature of the most important characteristic limiting use-intensity. Thus, soils subject to erosion are placed in the "c" subclass, and soils with a water-control problem in the "w" subclass of the appropriate class. For example, several soils suited for cropping but having drainage difficulties of increasing severity would fall into subclasses IIw, IIIw, and IVw as the drainage difficulties became more critical.

The grouping used in our technical guides and farm plans for fitting information in soil management, conservation practices, and treatment needs to specific soils is called the capability unit. Capability units are a division of the subclass. Within the capability units are grouped soils having similar problems, crop adaptability, management requirements, and conservation needs. Productivity should be relatively uniform within a capability unit. The management groups used in some of the published soil surveys are in general very similar to the capability units.

These capability units are coming to be our most important grouping in using soil science on farms, and the subclasses and classes are now used primarily in estimating conservation needs and appraising the conservation problems of broad areas.

While various groupings of soils are proving useful, each for specific purposes, many of the farm planners of the Soil Conservation Service, as well as others using soil surveys, work with the individual soil units as delineated on the maps, without grouping. This is particularly true of those with considerable experience in the area where they are working, or those in areas where the soil pattern is relatively simple. This way of using the maps permits the use of the most specific information available about the soils of the area.

The soil-mapping program of the SCS since its beginning has covered about 410 million acres. At the present time we are mapping about 37 million acres per year.

Careful examination of the progress map of Soil Conservation Service surveys and those recently completed by the Bureau of Plant Industry, Soils, and Agricultural Engineering shows some overlapping. In most of these counties the same map has provided the basis for

Soil Conservation Service farm plans and for the published basic soil survey. This in itself suggests the need for close coordination.

Last winter we undertook a field study of mapping and the use of maps, looking toward technical coordination of the mapping work of the two agencies. This study was carried out by staff members from the SCS and the BPI-SAE, and extended over a 6-month period. One of the conclusions reached in this study was that the map requirements for a good job of conservation farm planning and those for a scientific soil survey were pretty much the same.

In the development of arrangements for achieving a high degree of technical coordination of the two mapping agencies, it became evident that one agency combining all soil survey activities would be desirable. Inasmuch as the soil maps are such an important working tool in the Soil Conservation Service, the administration of this combined program was placed in the Service by the Secretary.

In this new soil survey organization we hope to preserve the best features of both of the mapping programs entering into the combination. In the SCS there has been developed a great deal of experience and skill in using soil maps as a basis for a technical assistance program. This experience indicates the need for very close cooperation between the soil scientists engaged in mapping and the farm and ranch planners.

Our ideas of the map requirements of a sound technical assistance program have been developed through wide experience. The use-capability concept has proved highly useful. In the basic soil survey, a great deal of progress in standardization of terms for describing and defining soils has been made in the last decade.

Fundamental studies of soil genesis, classification, and correlation have led to a better understanding of the properties and distribution of different soils and to more efficient and accurate mapping. The series and type classification has been improved through these studies and is the common basis for reporting research results by State experiment stations.

In the new organization these fundamental studies leading to improvement of the nationwide system of classification will be continued and expanded. Then, too, as research workers

develop new ways of using and managing soils, a system of yield estimates or productivity ratings becomes more valuable as a way of helping farmers make their choice of alternative ways of using their land. We feel that attention to this phase of soil survey interpretation will help us work with farm management economists in developing sound plans for farms and ranches.

Close cooperation with State college workers in all phases of the program will be maintained and strengthened. We look forward to working out more rapid and effective programs for the reproduction and distribution of survey field sheets and the publication of county maps and reports.

As the program progresses we plan to make maps from which practically all users can get the information they need. The field sheets and mapping legend will be designed so that, either by direct use or by interpretation, a map suitable for farm planning in soil conservation districts, for use in the research and educational programs of the State colleges, for planning the soils phase of programs such as TVA, the Bureau of Reclamation, and highway construction, and for published basic soil survey maps can be obtained. In many of the current surveys this has already been accomplished, with resultant increases in the efficiency of all programs.

The procedures for mapping will be fitted to the needs of the agriculture of the area. For example, on an area where a new irrigation development is under consideration, the maps will need to be very detailed and show many features of the soil and underlying material, whereas in areas where forestry or range represent the only possible uses less detailed maps will meet the needs.

At times, generalized maps of certain areas may be prepared at a fairly rapid rate in order to guide broad programs for land development, with more detailed mapping within the area coming along as the program moves ahead.

An organization to carry out the USDA share of the responsibility in the field of soil surveys is being worked out. Based upon past experience and recognizing the future needs for the work, we have several basic principles to guide us.

First, the soil survey staff must have close

working relationships with those who are using the maps in technical assistance and educational programs on one hand, and with research workers in all phases of soil science on the other. One of the most important responsibilities of the survey program will continue to be to supply planning technicians in soil conservation districts with the maps needed as a basis for sound farm and ranch plans. Only through close working relationships with the planners and with research workers in soil management can the soil survey provide the kind of maps needed for application of the whole field of soil science to our operations program.

Second, we must provide for technical coordination at all levels in order to maintain a nation-wide system for the definition and classification of soils. Without this, the survey program cannot reach its maximum effectiveness as a way of transferring experience from one area to another, and as a scientific inventory of national soil resources.

Third, we must include within the soil survey the research activities needed to insure a continually improving program—one that will keep pace with the needs of a rapidly changing and progressively more scientific agriculture.

Fourth, close cooperation with the land-grant colleges and with other Federal agencies must be a part of the day-to-day operation of the program.

We believe that an organization and staff consistent with these requirements is possible. Naturally, the details of the arrangement will vary in different regions and States in order to fit the conditions of each area. Furthermore, we must look forward to making the changes that future developments indicate to be desirable.

In all of our consideration of this soil survey problem, we must keep in mind that the soil survey is not the end in itself. Soil surveys are primarily a tool for helping us reach a further goal. This goal is to provide American farmers with the information they need to develop efficient, sustained systems of production that will meet the needs of the country for food and fiber.

In order to reach the high levels of production likely to be needed in the years to come, American farmers should not have to choose between production and conservation. If the full weight

of science is directed toward the problems of using and managing soils, farmers can achieve the needed production and still protect and improve their soil resources. Soil survey maps will be one of our most important aids in bringing this knowledge to bear upon each farm, and in helping each farmer choose from the developments of research, the way of managing the soils on his farm that is best fitted to his personal resources and objectives.

DISTRICT PROFILE

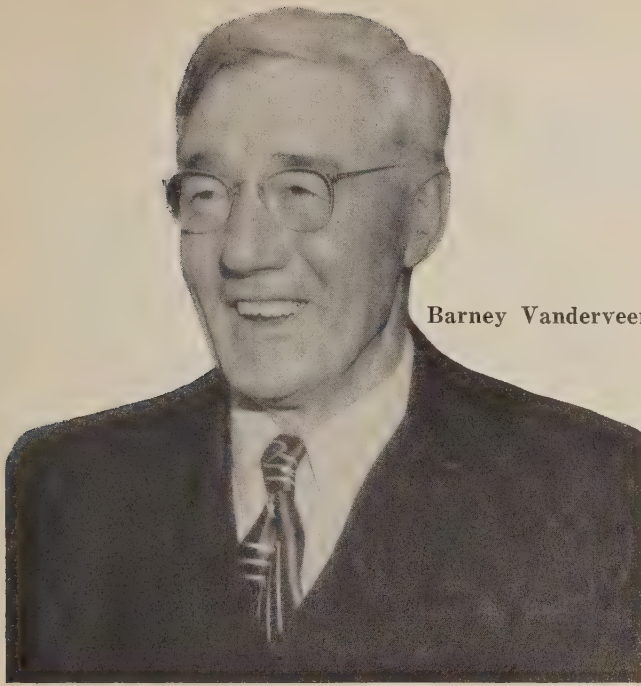
BARNEY VANDERVEEN
of
MICHIGAN

WHEN people in central Michigan talk about "Mr. Soil Conservation," they mean Barney Vanderveen, of course. Barney is a director of the Osceola County Soil Conservation District, and is the unofficial dean of soil conservationists. He has a record of perfect attendance at every regular board meeting held since the formation of the district in 1944. In February 1953 Barney was honored by soil conservation leaders of the State and district in celebration of his attendance at one hundred regular board meetings without a single absence.

Barney's attendance at board meetings is not an obsession with him. It's merely one expression of his sincere friendly interest in his community and in good land use—an interest that also showed up in a desire to do a good conservation job on his own farm.

Barney moved from Grand Rapids to his 40-acre farm, near Marion, in 1917. He couldn't even begin until he had cleared 30 acres of brush and cut-over timber. Today he follows a system of diversification. His cash crop is potatoes grown from seed. Conservation farming enables him to produce up to twice the usual yield, and the quality is high. He also has a dairy herd of five purebred Guernseys. He cooperates with Michigan State College in keeping farm accounts, and records show his production is well above the average in his 10-county area.

Having been brought up to love the land, Vanderveen determined that something should be done to control the wind and water erosion



Barney Vanderveen.

which he saw on his own farm and the farms of his neighbors. In 1943, when a committee of farmers was working with the local Vo-Ag instructor to set up the program for the winter adult education classes, Barney said, "Let's talk about soil, the basis of our agricultural operations."

From this series of meetings developed the impulse for the formation of the Osceola Soil Conservation District. But Barney couldn't wait. He established his first contour strips by using a carpenter's level to run the lines. When the district was organized in 1944, Barney was out in front in applying a farm conservation plan. It is tabbed Number 4 in the district files. He was selected as one of the first directors and has been reelected three times.

Barney was born and raised in the northern part of the Netherlands in the province of Groningen. At 18, in 1905, he came to the United States and settled at Grand Rapids, Mich., where he worked as a mason until he moved to the farm. In 1910 he married Gertande Sikkema. They have one daughter and a granddaughter who also live on a farm.

Vanderveen is an active member of the Highland Christian Reformed Church. He is a director of the Falmouth Co-op. He is a veteran leader in the Farm Bureau and was one of the originators of the Osceola County Farm Bureau.

Many groups call on Barney to talk about soil conservation. His humorous, down-to-earth, common sense philosophy and plain talk have done much to spread the knowledge and application of sound land use. Barney Vanderveen has well earned his reputation as "Mr. Soil Conservation."

—W. W. RUSSELL

THREE-TIME WINNER.—Jerome Effertz near Velve, N. Dak., a member of the board of supervisors of the South McHenry County Soil Conservation District, says, "Since I have farmed the conservation way, yields have increased and I believe I can leave as productive a farm for my boys as it was when I started farming 20 years ago." He plans to improve his 1,625 acres still further by the use of grass and legumes and other measures to build up soil structure and fertility.

In 1948, soon after the district was organized, Effertz became a cooperator and developed his present conservation plan with the help of G. F. Schwandt of SCS. But his start in conservation farming came long before then. He already was practicing wind strip cropping with a 2-year crop rotation and stubble-mulch tillage of fallow land; he had followed a system of deferred and rotation grazing, had seeded a gravelly area to grass, and had developed two springs and two stock-water dams.

SCS technicians helped him develop waterways to dispose of excess water from a low area of about 60 acres, establish grass-legume strips in the crop rotation, and establish farmstead and feed-lot windbreaks.

For 3 years—1948, 1949, and 1950—he was one of the soil conservation district's winners in the Greater North Dakota conservation achievement program. In 1950, the district's team was a State-wide winner.

HEAD OF CLASS.—Eighteen of the 25 farmers who received the top "excellent" rating in New Jersey's Green Pasture-Forage contest in 1952 were district cooperators. Extension Service annually conducts the contest in 11 counties, and every one of them is in a soil conservation district. Each of the 18 winning district cooperators has a complete (basic) conservation plan, made for his farm by the individual farmer and SCS technicians.

NO SUBSTITUTE FOR PARTICIPATION.—Faced with a heavy backlog of work, a Minnesota work unit began using farmers as rodmen and instrument men. They found that this saves time, teaches farmers the fundamentals of planning and construction, increases the farmers' concept of technical principles, and increases the likelihood of good maintenance of a project which the farmers themselves have helped plan.

White Gold



Roy Austin and Ralph Felker, seek Utah's mountain heights with one of the "sno-cats" famed for their feats on snow course.

By **GEORGE D. CLYDE** and
GREGORY L. PEARSON

OF more value to the economy of the Western States than all the precious metals lying on or under the surface of the ground is the blanket of "white gold" which covers their mountain watersheds each winter. The snow that accumulated at high elevations in these states is a natural storage reservoir which annually provides the major part of the western water supply. During spring and summer the snow melts and appears in surface streams or ground water supplies to meet the agricultural and other water demands of the west.

At present more than one-eighth of the irrigated land of the entire world is within the United States. One-fourth of all the people of the world are fed and clothed by the products from such land. It is evident that water, and the beneficial use of water through irrigation and conservation, are of high importance in the production of the world's food. The snow from which most of this water is derived is veritably "white gold" to the west, the nation and the world.

Note.—The authors are, respectively, chief of the division of irrigation engineering (research), and hydraulic engineer, in charge Utah cooperative snow surveys and irrigation water supply forecasts (research), both of the Soil Conservation Service.

The importance of water-management practices by agricultural, power, municipal and industrial water users is well established. The need for water-supply forecasts which make possible efficient water management has not yet become so well recognized but is equally important.

The need for such forecasts arises because the flow of streams is not coincident with agriculture's demand for water. Western streams are not always subject to control by storage. Most water rights are for natural flow. But natural flow may vary from 25 to 200 percent of normal during the growing season. For the farmer to use his water most effectively, he must know how much to count on, and approximately when it is coming.

Water users know how much water is in storage in their reservoirs at the beginning of each season. This, added to the water supply forecast for the irrigation season, gives them a complete picture of their water resources and allows them to plan their management accordingly.

In years of heavy mountain snow cover and abundant water supplies, reservoirs which are built primarily for storing irrigation water may also be used for flood control. To decrease flood peaks, reservoirs must be lowered so that sufficient reserve storage space is held until the flood

peak arrives. If reservoirs are filled too quickly, there is no storage space remaining to reduce the peak flow. If operators wait too long, there is danger of not being able to fill their reservoirs with needed irrigation water. The vital timing factor in flood control through proper reservoir operation is dependent on forecasts based on frequent snow-survey inventories which determine the current status of flood potentials.

To meet the demands for advance information on volume and distribution of seasonal irrigation water supplies, a practical snow surveying program was begun in Nevada in 1910 and in Utah in 1923 by the agricultural experiment stations of these states. Subsequently, the snow-surveying program spread to the other western states and involved cooperation by many federal, state and local agencies.

By 1935 the two experiment stations had



At this snow course lodge in Utah in 1952 the snow depth was 116.3 inches and the water content 44.7 inches.

established the basic principles of forecasting water supplies from the snow cover. It was time to integrate the work in the various states and to apply it to inter-state streams over wide areas. The division of irrigation, then of the Bureau of Agricultural Engineering, was designated by Congress to do the coordinating, and a west-wide network of snow courses was established.

In 1939 the division of irrigation was transferred to the Soil Conservation Service. The snow surveys and water-supply forecasts became an important asset to the nation's whole scheme of soil and water conservation.

A snow survey means the measurement of snow at predetermined points along a fixed line or series of lines high in the mountains. The term "snow course" refers to the series of sampling points at which the snow depth and water content are determined. The average of these individual samples at each snow course site is reported as the snow depth and water content for that course.

The approved procedure for determining the water content of snow consists of driving a metal tube vertically down through the snow to the ground, so as to cut a core of snow. The snow core is then weighed. Its diameter is such that an ounce of snow core is equivalent to an inch of water in the snow. Thus, if the snow core weighs 36 ounces it contains 36 inches of water.

The general program in the Western States calls for a snow survey on about the first day of each month from January to May, inclusive, at a limited number of key courses, with all courses being measured on April 1. Most courses are also measured on March 1.



Oregon's Mount Hood reigns over the great mountain snows of winter—the treasury on which irrigators will draw for their summer supplies of crop moisture.

(Continued on page 206)

Remember the CCC?



Tents sheltered corpsmen until permanent barracks were erected at Shelocta, Pa.

By BERNHARD A. ROTH

TWENTY years ago, America began recruiting the largest force of trained outdoorsmen it ever had. For nearly a decade afterwards the U. S. Civilian Corps campaigned colorfully for the nation's natural resources.

Since the last cadre of the "woods army" turned a final shovel full of earth at an airbase on August 12, 1942, interest in the Corps' mighty contributions to the forests, lakes, streams, range and croplands of the country has mounted rather than diminished. A new version of the Corps might have been established, if the Korean outbreak had not made a prior bid for America's young men.

The ghost of the CCC seems destined to haunt the nation's wondrous out-of-doors. The epic written across the landscape by the boys in green can still be read in the silent chill of the Alaskan forest, beside the foaming torrents of Northwestern rivers, at the water-holes of a thousand desolate miles of rangeland, among the cane fields of Puerto Rico and the Virgin Islands, on the volcanic slopes of Hawaii, and along many a busy road, from coast to coast, where hard-pressed city folk seek to renew their jaded spirits at the hand of Nature.

Although formation of the Corps was primarily an act for relief, it opened an unforgettable adventure in learning the ways of soil, water

and wildlife for the job-hungry, discouraged youngsters of our worst economic depression. At disbandment, almost 3 million junior enrollees (17 to 23 years old) and 200,000 veterans of the first World War had bent their backs in service to the future of the land. By Pearl Harbor, the Army's custody of the CCC had furnished invaluable training for more than half the regular commissioned personnel and 60,000 reserve officers.

An era of spectacular dust storms, floods and forest disasters lent urgency to organization of the fabulous Three C's.

What a mobile, well-deployed field force of young outdoorsmen could do was amply demonstrated in the nine and one-third years of the Corps' existence. Although one of the world's worst forest fires consumed 10 billion board feet of standing timber in Oregon's tillamook forest in August of 1933, the national forest fire damage dropped an average of 27 per cent while the C's were operational. The Corpsmen put in over 6 million man days on the fire lines. Four gave their lives. More than 20 were cited for gallantry.

Children of ex-Corpsmen may harvest some of the 2 billion trees grown from hardwood and coniferous seed they collected, tended, and set forth on bare hills, forest burns and wildlife areas. Fire suppression today is made easier by the 125,000 miles of trails, 90,000 miles of woodland telephone lines, and general improvement work of the CCC on some 12 million acres.

Achievements of the green-clad youths of yesteryear score high with hunters, fishermen,

The CCC planted more than two billion trees in United States and territories; many are ready for lumbering.



Note.—The author is an information specialist, Soil Conservation Service, Upper Darby, Pa.



Wholesome food and months of living outdoors conditioned millions of American boys for service in World War II.

campers and other outdoor enthusiasts. Supervised by federal and state agencies, they built 5,000 fish-rearing ponds, improved fish and wildlife habitat on 115,000 acres, developed 7,000 miles of streams for better fishing, stocked almost a billion fish, spent 115,000 man days feeding wildlife and made 32,000 wildlife shelters. Numerous parks in all but a handful of states owe their existence almost entirely to the Corpsmen. They developed, landscaped and constructed facilities for 300,000 acres of camping and picnic grounds in 74 municipalities and 35 counties.

Led by the Soil Conservation Service, the land army readied 40 million supplemental acres for crop production. They applied erosion-control measures in 45 hard-hit states, that included 300,000 permanent and 6 million temporary check dams, 33,000 miles of water-diversion terraces, 430,000 outlet structures, and cover

plantings on 600,000 acres. The 25,000 water-holes, reservoirs and stock tanks they installed brought, restored or increased the usefulness of many additional areas.

Ten years ago, 2 billion dollars was the tangible value set on the program. But no one will ever know what total values accrued in the minds and hearts of those who served. Most of them got closer to the meaning of America through their contacts with field and forest. They were browned by the sun and wetted by the rain and most of them were physically improved by the experience. They went into the armed services 11 pounds heavier on the average, and noticeably healthier. More than one army officer found a competent, non-commissioned staff by the simple expedient of asking former C-men to step out of ranks.

(Continued on page 206)

REMEMBER THE CCC?

(Continued from page 205)



SPIRIT OF THE CCC

After twenty years, who are they? They live in every community. They are in every walk of life. They are your friends and neighbors. They are the alumni of the Civilian Conservation Corps.

These men are the finest citizens this country has ever produced. In peace and in war their service to their country has permanent worth. America is covered with highways, bridges, dams, levees, irrigation systems, fire trails, fire towers, state and national parks, state and national forests, public buildings, which are the fruit of the CCC. Thousands of acres of eroded and useless land are now fertile and productive because of them. Thousands of acres of fire-scarred tree trunks and cut-over timber are now covered with fresh, green, growing, magnificent tree plantations. Lakes and rivers that, at the end of the lumbering era, were full of logs and debris, were unnavigable and dangerous are free-flowing, full of fish, enjoyed by millions of people.

In World War II and since, at home and all around this world, the CCC boys were the best prepared fighting men this country has ever produced.

Now, it is time for a national CCC memorial.

The CCC is dead, buried, and forgotten. But, the spirit of CCC lives and will continue to live—the finest flower in the evolution of our American democracy!

Any national CCC memorial should meet present and future needs. Why not a *voluntary* Civilian Conservation Corps, with a membership made up of those who choose to dedicate their lives to the CCC objectives: (1) conservation of human resources, (2) conservation of natural resources, (3) community beautification?

What part will you have in the creating of a National CCC Memorial? I should like to hear from interested CCC alumni by postcard. They can reach me at 1710 Sixteenth St., N. W., Washington, D. C.

—Clarence C. Case

The pattern set by the CCC may be useful sometime again. In ordinary years, there are at least a million American youths at loose ends—unemployed or dabbling with part- or kill-time jobs. Among them there are many who can appreciate the classic expression of a former CCC boy: "I'm going back to that land, some day. I worked hard on it and I feel that I own part of it."

WHITE GOLD

(Continued from page 203)

Seasonal water supply forecasts based on snow surveys are made by determining relationships between the runoff which comes from a given watershed and the water content of the snow cover as represented by the snow courses on that watershed. Other modifying factors, such as soil moisture, fall and spring precipitation, and vegetal cover, are also considered.

There are now 1,175 snow courses in the network. These include the ones in British Columbia, Canada. Seasonal stream flow is being forecast on all major streams. Efforts are currently being directed to develop more detailed forecasts on the minor streams, which are of first importance to soil conservation districts.

Excellent examples of the way in which the data are being utilized by soil conservation districts and other water users in Utah occurred in both 1951 and 1952.

After a serious drought in 1950, water users in southern Utah were alerted by the snow surveyors to the possibility of experiencing a second and more severe drought. The January 1, 1951 snow survey of the key Widtsoe-Escalante Summit snow course showed only a trace of snow. A special survey was made about the first of February to determine the extent and severity of the approaching drought. It was found that the snow cover varied from 16 to 70 percent of average in the southern and eastern parts of the state, while northern Utah watersheds had average prospects or better.

With these results to go by, farmers, cattlemen, water users associations, and municipalities began to plan what they could do to lessen

the severity of another drought. By the time of special March 1 surveys, when the water-supply picture was more firmly established, cattlemen started shipping their cattle to northern Utah or out of the state, or sold them, keeping only what they believed they would be able to feed. Water users associations and municipalities announced restricted water schedules. Farmers planned to plant early-maturing crops, severely curtailing sugar beets and potatoes which need late water. By April 1 when the final runoff forecast was issued, southern Utah's economy was prepared for the impact of drought conditions; consequently, the adverse effect was greatly diminished.

Water users in the transition zones between the areas of drought and areas with above-normal water supply were extremely concerned as to the runoff they could expect. Water users in the Mayfield and Gunnison areas of central Utah requested that snow courses be established and measured on Twelve Mile Creek, which serves their area. This was done by Kenneth Keller, work unit conservationist, Nels Sorensen, president of the Mayfield Irrigation Company, and

G. L. Pearson, co-author of this article. These water users were greatly relieved to learn that runoff of this stream would probably be about average.

Doyle Lund, district conservationist at Richfield, reported that farmers were much more responsive to advice on good water-management practices because advance knowledge of their low water supply had come through the snow survey program of the Service.

The snow surveys of 1952 showed a record flood potential. Since early season surveys had revealed the dangerously heavy snowpack that was developing, most threatened areas prior to the April 1 forecast already had begun to take steps to minimize the expected damage from snowmelt runoff.

As early as February, programs were initiated to prevent flood damage. Dikes were built, channels dredged, emergency drainage ways provided, debris cleaned from stream beds, and reservoirs lowered to provide reserve storage.

Even though some areas in the state were slow to take positive action to minimize the flood damage, enough was done toward control to reduce vastly the destruction that would have occurred had there been no advance warning. The losses were estimated at two million dollars for farm and irrigation facilities alone, with additional millions of damage to municipalities, highways, bridges, railroads and forest lands and roads.

Innumerable similar benefits have been experienced throughout the West since beginning of the snow survey. The forecasts were worth millions to farmers in 1934 and in subsequent drought years. They have been worth millions to those interested in flood control, as was evidenced on the Columbia River in 1948, the Kootenai in 1946, and over the entire West in 1952.

These water supply forecasts are not limited in value to the agricultural users. They are equally valuable to power companies, industries, municipalities, and all other users of water.

Snow surveys and water supply forecasting have become established as one of the great contributions of the Soil Conservation Service. The people, and particularly the farmers, are looking



G. L. Pearson and Ralph Felker measuring on the Trial Lake snow course in Utah, March 1952.

(Continued on page 215)

A District Comes to Butte Valley

By HERB BODDY



This irrigation well on ranch of Maggie Criss and Sons, near Macdoel, throws 3,400 gallons per minute with a lift of from 48 to 54 feet. The Criss family is bringing 380 acres under irrigation by using this well and another that produces 1,800 gallons per minute.

HUSTLING settlers in Butte Valley, on the bangtail of California's northern boundary, have much to show for the good land use measures they started in 1945.

Look at the strides they've made! Fifteen thousand acres of brush and old dry crop land have been cleared, tilled and sowed largely because of the work of their soil conservation district.

In nearly every nook and cranny of the valley, which lies in the lee of the Siskiyou, there's land development in progress. Numerous irrigation wells have been dug. Leveling crews are busy. More and more dry land grain and range acreages are being seeded to irrigated crops. Irrigation systems, laid out the conservation way, are taking shape on many farms. Everywhere, a "golden age" seems in the making.

The speed-up in Butte Valley's farming industry was slow to start. It has not been easy. The valley is in a 10-inch rainfall belt, and water is usually scarce during the growing season.

There was a time when big herds of cattle pastured here. In the early 1900's the grain growers arrived. There still weren't many irrigators as recently as 20 years ago. Most wells were for home use. A lot more farmers would have turned to irrigating, had they known there was plenty of water under their feet.

By the thirties many farmers tired of risking drought. They began tapping the valley's underground water basin. And as water was made increasingly available, a larger share of dry land grain and range land went into the better-paying irrigated crops, such as alfalfa hay, alsike clover seed, and pasture.

But Butte Valley's settlers like to think of 1945 as the real turning point. That was the year they voted into existence their 250,000-acre Butte Valley Soil Conservation District. By then they had some 15 wells. Launching the district

Note.—The author is information specialist, Soil Conservation Service, Portland, Oregon.



Charles Thompson, foreman of the Deloss Mills ranch, and Jess Langdon, of the Soil Conservation Service, in field which was broken out of sagebrush in 1951. The 60 acres averaged slightly over 1,000 pounds of cleaned alsike seed per acre.

program was the start of a brighter and more abundant life.

Irrigation wells tell part of the story of the valley's development. Eighty new ones have been drilled under the district program. More are going in at the rate of 20 a year.

As you tour the district today, you can spot soil and water conservation work nearly everywhere. One day you see land in sagebrush. A few days later the same land is in irrigated crops. Things are happening that fast. And it's the way farmers like Irvin Shoemaker, Deloss Mills, Maggie Criss and sons, Jane Butler, G. W. Osborne, Morris Gilmer, Rex Gritzmaker and Henry Andrus are getting things done. There are many others like them among the district's 250 farmers.

Most irrigators are giving major attention to alsike clover seed, seed potatoes, alfalfa, and improved pasture. Yet dry land grain is still among the favored money-makers.

Members of the district's governing board Walter Robinson, James Butler, Lewis Parsons, Raymond Garey and Joe Allen are proud of the strides being made in improving their lands. You learn that in less than 8 years some 15,000 acres of new, cleared land have gone into production. More than 75 conservation-planned irrigation systems, covering 14,000 acres have been laid out. Half of the irrigated area has been leveled to make water flow more evenly over fields. Two thousand acres of brushy land are to be cleared this summer. Ninety wells now furnish water to irrigated crops. Most systems are of the flood type, although you do see a few sprinklers.

Of course not every Butte Valley settler is living on Easy Street. Some farmers find making a living from the land a hard go, even with ample water. But there are many settlers who are prospering greatly.

The soils are on their side: generally light-textured, moderately fertile, sandy loam. They yield well after a legume planting.

Farmers work out many of their land problems by themselves. But when difficult questions arise, such as laying out an irrigation system, setting up a crop rotation plan, staking out a rough field for leveling, or picking the right pasture mixture, they are relying on technicians of the Soil Conservation Service. The technicians work at the side of the farmer, with the latter

determining how far he wishes to go on a conservation program.

How much does it cost to put one acre of the valley's brush land in top working order? It's much more expensive than it once was. Still, most cleared land pays for itself in a year or two, under good management.

Here's the breakdown on the basis of one acre:

1. Clearing land with sagebrush and trees, \$40 to \$60, depending on number of trees.
2. Clearing land with sagebrush cover only, \$5 to \$10.
3. Leveling, \$30 to \$75 (average, \$50).
4. Planing, for even distribution of water, \$5 (depending on amount of smoothing required).
5. Tillage and seedbed, about \$3.
6. Border checks, \$3 to \$5. (Includes criss-crossing with small ridges, spaced 30 to 60 feet apart; runs about 300 to 400 feet long.)
7. Well and pump, \$4000 to \$7000. Pumps about 4 second-feet., or 1800 gallons per minute.

On an average, Butte Valley farmers expect to spend from \$125 to \$200 per acre to put brushland in production.

Farmers are making good gains from their new irrigated lands. Take these average acre yields, for example: alsike clover seed, 500 to 600 pounds; potatoes, 250 sacks field run of which 70 percent are No. 1's; alfalfa, 2 tons per cutting—2 cuttings per season; barley, twenty-five 110-pound sacks; and wheat, 40 bushels.

Butte Valley is no place to make money on a shoestring. But those who can afford these capital investments in land improvement are finding not only quick returns but permanent ones.

FIRE PROTECTION THROUGH TEAMWORK.—Cooperation between the selectmen in the town of Hadley, Mass., a farmer, and the Hampshire Soil Conservation District and cooperating SCS technicians has provided fire protection for 12 properties comprising the village of Hockanum. The small cost of \$300 was paid by the town. Farmer John Barstow offered a pond site close by the village and adjacent to a hard-surfaced road. Nearly 650 cubic yards of earth were removed to make a 1/10-acre surface pond. It holds 100,000 gallons of water, fed through a tile line.



Two hundred acres of grain, clover, pasture and alfalfa are irrigated by this 600-gallon-per-minute well on the Deloss Mills property, plus another well that pumps 2,400 gallons per minute.

Many district governing boards subscribe for SOIL CONSERVATION Magazine. Many others put the magazine in the hands of all new district farmers. In this way, conservation farmers keep informed on the things that are of daily pocketbook concern to them. Price is small—\$1.25 per year.

LAND LEVELING PUTS WATER TO WORK

By VIRGIL S. BECK

Maurice Stillings with
twin registered Suffolk
buck lambs.



Note.—The author is in the current information division, Soil Conservation Service, Albuquerque, N. Mex.

WHAT was once wasted and erosion-inducing water is being made to produce native-grass pasture and hay for livestock on the 680-acre farm of Maurice Stillings, about 8 miles northwest of Alamosa, Colo., along the Rio Grande.

By means of dams, dikes, and diversions, Stillings is salvaging water that used to flow across a large portion of his land in sloughs and is using it to produce grass.

When young Stillings returned home from service in World War II in 1945, he and his father, Delbert Stillings, bought the farm in partnership. The land had been in the hands of renters since 1927, so they set out to try to bring it into profitable production. The son bought his father's interest in 1951. The father now is farming the home place south of Monte Vista. However, they still are partners in operating their land leveling equipment and in sheep production.

When Maurice and his father bought this farm, about 140 acres were in irrigated cropland; about 525 acres were wasteland, which they decided to try to develop into native pasture and meadow; and the rest was in farmstead, roads, ditches, and the river bed.

The cropland is from 4 to 5 feet higher than the pasture and meadowland, has natural drainage, and can be either surface or subirrigated. The farmstead is located between the cropland and the pastures, so this facilitates the handling of farm activities.

About 250 acres of the pasture and meadowland on the north side of the farm were subject to direct flooding by the Rio Grande. A small creek entering from the west side carried the return flow from lands flooded by the river further upstream and spread water over the pasture and meadowlands for brief periods. In addition, sloughs carried runoff water from other farms.

The owners began to observe the high spots where the native grasses weren't getting water, and the low spots where the grass was drowned out by too much water. They built dams, dikes, and diversions at strategic points to hold and spread the water. High spots were knocked off and low spots were filled. This resulted in the water table being raised as much as 2 feet in some areas with grass growth being improved.

The whole program of improving the pasture and meadow areas has been on a trial-and-error basis, young Stillings points out. Leveling to grade for perfect irrigation on the pasture land is too expensive when results are in doubt, so the value of rough leveling has been watched closely. To date, about half of the 525 acres are producing an average of a half ton of native hay and grass to the acre where very little forage was being grown before the program was started.

About 80 acres of the brushland have been cleared and are producing feed. He has found that the native grasses are fine for the cattle, and in open winters they run on it until February, when they are put on hay and cake. A live spring in the meadow area provides year-round water for the cattle, and the area attracts a wealth of wildlife, particularly ducks.

Maurice and his father entered into a cooperative agreement with the Mosca-Hooper Soil Conservation District January 3, 1950, and Lloyd Elston, representative of the Soil Conservation Service assisting the district, helped plan their conservation program.

Last year, about 35 acres of the pasture land were leveled and seeded to a mixture of alfalfa, brome, and crested wheatgrass as an experiment. A spotted stand of about 50 percent was obtained and provided good grazing for livestock.

Three of the five cropland fields have been survey-leveled for the most efficient use of irrigation water. All leveling on cultivated fields is done after potatoes have been grown, because this eliminates a lot of bothersome crop residues.

One 30-acre field, which was survey-leveled in 1949, was cut by a large swale. It had been watered to the north and produced poor crops, so the irrigation slope was changed to the east. Alfalfa was seeded after the field was leveled, and it produced 2 tons to the acre last year.

On another 20-acre field, only about 7 or 8 acres on a high ridge could be farmed; the rest of the field was low and had grown up in cattails. This field was leveled in 1950, with 2-foot cuts and 5-foot fills having to be made. This field was seeded to alfalfa last year and made a good stand.

Another 25-acre field was leveled in 1950 and was in Madrid clover in 1951. Stillings probably

is one of the few farmers in this area who is growing Madrid clover. He likes it because it grows faster, has more fine foliage, and is more resistant to frost. This field will be planted to potatoes this year.

A 34-acre field which was in potatoes in 1951 is to be leveled this year.

Another 34-acre field was planted to oats last year, but the crop blew out and froze. Madrid clover and barley then were sown, and 15 tons of clover hay were cut from the field; otherwise production would have been lost for the year. This field will be planted to potatoes in 1953 and will be leveled in 1953 or 1954.

In addition to leveling two more fields, young Stillings plans to continue clearing brush and improving water distribution on his pasture and meadowlands.

He now has 25 Hereford cows and is feeding out his steer calves. His bull was purchased as the grand champion at the San Luis Valley Cattlemen's Association Bull Show in 1950. Several of his best cows are descendants of some of his original 4-H Club heifers. He plans to increase his cattle herd as more grass becomes available and believes he eventually can double the carrying capacity for his breeding herd.

The Stillingses now have 300 ewes, mainly Suffolk breed, which they move from one farm to another, depending upon the feed supply. They are strong believers in cross breeding, but all bucks are Suffolk. Sheep graze the sweet-clover fields and the manure dropped is supplemented with manure from the corrals. This year, Stillings plans to try liquid fertilizer in the irrigation water.

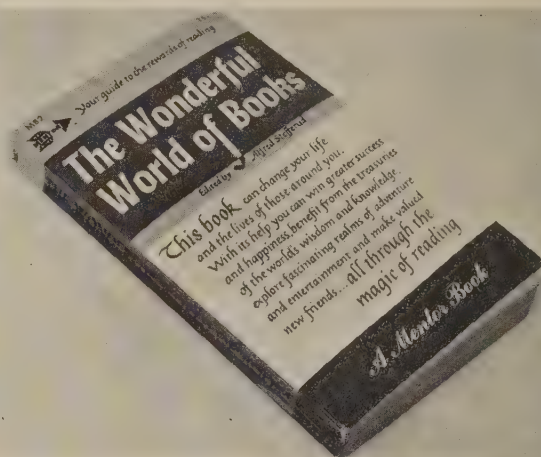
In carrying out his soil-improvement program, Stillings plans a 4-year rotation of clover, potatoes, and silage crop. A good acreage of alfalfa with brome grass is maintained and will be worked into the rotation when the soil fertility is built up. Oats are grown as a nurse crop with new seedlings of both clover and alfalfa.

He has found that the use of soil and water conservation practices doubles his alfalfa and sweetclover yields, and that potato production is being increased rapidly as more land is leveled and watered. The potato yields have been ranging from 300 to 450 sacks to the acre.

Stillings also has established a windbreak of Russian-olives, yellow willows, and evergreens on the south and west sides of the farmstead.

REVIEWS

THE WONDERFUL WORLD OF BOOKS. Edited by Alfred Stefferud. 319 pp. 1953. New York, N. Y. The New American Library of World Literature, Inc. 35 cents, paper; Houghton-Mifflin \$2, cloth.



"The Wonderful World of Books" is rather wonderful in itself—a tribute to the astute editorship of Alfred Stefferud, well known for his supervision of The Yearbook of Agriculture. The book is strictly a non-profit enterprise, and it is sponsored by highly respected institutions in the fields of education, library arts, and book manufacturing. Few there are who will not find it enjoyable, informative and profitable. That goes for children and grown-ups, teachers, farmers, housewives, businessmen, scholars.

Stefferud's fine hand is seen in the planning and presentation. Under his marshalling, 67 acknowledged authorities join to make books more enticing, understandable and useful. Their central purpose seems to be to encourage more people to read. Charles E. Kellogg, of the Soil Conservation Service, in an article on "What Makes Good Scientific Writing" offers suggestions which might well be taken to heart by every scientist who breaks into print. The Department of Agriculture also is represented by Caroline Sherman, Louis O. Bercaw, and Mary S. Switzer.

The appeal of "The Wonderful World of Books" is not narrowly limited. The main divisions indicate the breadth of range: Books Are

Friends, Pleasures of Reading, Reading Among Friends, Reading More Effectively, Books Look Upward, City and Country, Reading for Citizens, Toward Wider Horizons, Choosing and Using Books, Writers and Publishers, Books for Everyone, and Libraries Are For You.

Happily, this is not a book-burning land. And "The Wonderful World of Books"—a pleasant guide to the rewards of reading—constitutes one more index of the extent to which we are a true democracy.

—WELLINGTON BRINK.

THE EXPERT TOUCH—PLUS WATER.—In the Chino Valley section of the West End Soil Conservation District in San Bernardino County, Calif. Pete Borba and Sons are known as master farmers. The Borbas have a long record of successful farm undertakings.

On 800 acres of irrigated land they produce potatoes, alfalfa, beans, corn ensilage and other cash crops. Then they round out their program by milking some 700 cows.

Last winter the Borbas bought a 20-acre field which former owners had farmed without success. For some years the field had been in orchard, vineyard and field crops, all dry-farmed. The soils had little protection from the high-velocity winds of winter, known hereabouts as the "Santa Anas." Dunes and blowouts were everywhere over the 20 acres.

The Borbas drilled a well and installed a turbine pump. The well put out a steady flow of 1,350 gallons per minute for the new acreage and adjacent Borba farmland.

The land then was leveled and an underground concrete pipe system installed. Mark Dawson of the Ontario headquarters of the Soil Conservation Service gave engineering assistance.

After leveling, 1,000 cubic feet of cow manure and 1,200 pounds of ammonium sulphate were applied per acre, and the land planted to early Irish potatoes.

The Borbas irrigated the field regularly. And as vines became full grown, they were watered every day—one day on one side of the furrow, the next day on the other side. Technicians say that better yields can be produced with less water than the Borbas are using. Observational trials will be conducted in the next few years to determine the water requirements of the area.

The new improved 20-acre field produced well over 400 sacks of No. 1 white rose potatoes per acre the first year. The borbas don't say how much the crop netted them. But it undoubtedly paid for the land, the leveling job and the irrigation system—before taxes.

Early in October, the Borbas seeded a winter cover crop—well ahead of the winds—to keep the field level.

Not so long ago, Pete, Jr., was seen harvesting corn silage, bought from the Exchange Orange Products sewage-disposal farm. It take a lot of feed for 700 milk cows and additional dry stock—even more than the Borbas family can grow on their farm.

FROM PRINTER TO YOU.—Long-awaited pair of bulletins recently off the press are "Farm Drainage" (Farmers' Bulletin 2046) by Lewis A. Jones, and "Maintaining Drainage Systems" (Farmers' Bulletin 2047) by John G. Sutton.

"Farm Drainage" is a complete revision of old Farmers' Bulletin 1606, also authored by Jones, which has been out of print several years. It explains importance of drainage in conservation farming, values and uses of surface and tile drains, factors to consider in planning a drainage system, construction details, and related subjects. Intended as a guide for both farmers and engineers, it is 40 pages, well illustrated with diagrams and pictures.

"Maintaining Drainage Systems" emphasizes importance and economy of proper maintenance, methods of maintaining ditch and tile drains, causes of failure, equipment, planning, and maintenance in soil conservation districts and drainage enterprises. Also intended for both farmers and engineers, it is 32 pages, well illustrated and includes tables on use of chemicals for ditchbank weeds and aquatic weeds.

"Your Soil . . . Crumbly or Cloddy" (Leaflet 328) is an 8-pager by A. M. O'Neal and A. A. Klingebiel, SCS soil scientists. It tells why soil structure, or tilth, is important in a conservation program, its effect on crops, what causes collapse of soil structure, how to keep soil in good condition by rotations including grasses and legumes. Popular and easy to read, it is illustrated with good pictures.

"The Soil That Went To Town" (AIB 95) by C. W. Gee, is a 24-page, pocket-size account of soil carried by flood waters from the ridge top to homes and stores downstream. A large picture on each page and brief text describe the loss and the grief which it causes to the farmer and his city friends. Comparison is drawn between an eroded farm and an adjoining farm protected by conservation. Highly popular, elementary but dramatic, this leaflet is good for readers from 8 to 80.

Field offices should order publications through official channels. People outside SCS may get them from the nearest SCS office or the publications unit, Soil Conservation Service, Washington 25, D. C.

WHITE GOLD

(Continued from page 207)

to the Service for this information and its interpretation in terms of local water supplies. The soil conservation districts are now asking for the application of this service to their particular water supplies and this means more snow courses and greater accuracy of forecasts.

The "white gold" is now accumulating on the watersheds of the West. As this is being written, early seasonal inventories are being made, and results are appearing in the press and on the radio, so that water users can plan how best to put their available and prospective water supplies to the best possible use.

TEAMWORK SOLVES PROBLEM.—How farmers can solve common problems by working together in a single effort, rather than separately and usually at greater cost and with less effectiveness, is demonstrated in a current 3-farm drainage job in Erie County, Pa.



John Phillips and Joe Beard contemplate three-farm drainage ditch.

Last year John Phillips, a well known fruit grower, started out to work out a drainage problem on his back land, where shallow and poorly drained soil overlying tight clay deposited in an old lake bottom presented a difficult puzzle. The most successful treatment, he learned, would be an open ditch and dead furrow combination that would remove surface water and prevent ponding. Use of tile would not solve the problem because localized wet areas would remain; furthermore, the cost would be too high because the heavy clay soil would require spacing at 30 to 40 feet and backfilling with 6 to 8 inches of gravel.

A drainage survey sponsored by the Erie County Soil Conservation District showed that a satisfactory outlet could not be reached unless the ditch were cut through 3 farms. John Ferko and Lewis F. Davis, owners of the other farms, agreed to share the cost because their land also would benefit.

With a backhoe a ditch was dug to carry surface water from a 248-acre watershed and to catch seepage forced from the base of the terrace. It was 4 feet wide at the bottom and 16 feet wide at the top, with an average depth of 4 feet.

The side slopes had a 1-foot rise vertically for every 2 feet of horizontal length; they approached the normal slope made by water action. Removal of 5,781 cubic yards of earth, at a total cost of about \$1,000, was necessary to create a channel 6,071 feet long with a drop of 0.7 feet in 100 feet.

The ditch has drained 100 acres—the job it was built to do. Because it has a good outlet it also will bring similar benefits to at least 20 additional acres—10 in the Phillips farm and 5 in each of the other two farms.

This extra acreage can be improved by establishing bedding drainage systems with header ditches emptying into the open channel. Localized wet areas on all 3 farms can be drained by using about 20,000 feet of tile, also emptying into the big ditch.

John Phillips, who led in the cooperative effort, is an instructor in GI farm training work in North East area, and manager of Fruit Acres farm, owned by his father, M. D. Phillips. John, a director in the Erie County Soil Conservation District, teaches and encourages others and builds cooperation by practicing what he preaches and by making maximum use of conservation farming methods on his farm.

—JOSEPH S. BEARD

GROUPS DO THE JOB.—The sixty-seventh and newest farm planning group to be formed in the Jasper County (Iowa) Soil Conservation District is in the Rock Creek watershed. One of its first moves was to help with the Jasper County contour plowing match and tri-county field day on Runner's farm, an occasion which drew nearly a thousand visitors.



Farmers meet at Donald Runner farm to plan field day.

John Wilson, farm planner, reports that more than 700 applications for assistance in setting up farm plans have been received, and 535 such plans have been developed.

"We have found several advantages in working with groups," Wilson says. "One is the saving of time and mileage. Another is that farmers have a chance to compare notes and ideas as farm plans are developed. There also is a better likelihood of getting plans developed over a complete watershed. Some of the more difficult problems can be met better by the group than by individuals working alone."

KENTUCKY KIDS COMPOSE.—D. W. Orcutt, area conservationist, reports that more than 2,000 essays on conservation have been written by school children in The Flemingsburg, Ky. area. This is twice the number of essays last year. The contest is sponsored annually by the *Louisville Courier Journal* and *Times* and radio station WHAS.

A black and white photograph of a man in a cowboy hat and light-colored shirt leading a large, dark-colored cow with a white face and chest. They are in a field of low-lying vegetation. The man is holding a lead rope and looking down at the cow. The cow is looking towards the camera.

**Grass Magic
in
Alabama**

May 1953

SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION •

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EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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EMULATES SIRE.—Welborn Adams, a supervisor of the Harrison County (Ky.) Soil Conservation District for eight years, was honored in 1951 by being presented a Master Conservation Award by the Kentucky State Soil Conservation Committee. Following in his father's footsteps, his son John has won first place in the Harrison County FFA and 4-H Club Tobacco Show held at Cynthia, Ky.

John produced 2,316 pounds of tobacco per acre on contoured, terraced land on his father's 132-acre farm. The tobacco sold for \$62.06 per cwt. John placed second in a tobacco-grading contest in connection with the show.

PERSONAL CAMPAIGN.—Delmar Germer, a cooperater with the Dodge County (Wis.) Soil Conservation District, has started a one-man crusade to bring soil conservation education to the rural school children in his district. He has made an enlarged drawing of his farm plan and intends to visit all the rural schools in the district to talk on the subject, "What soil conservation has done for my farm."



FRONT COVER.—The story of what has happened to Alabama's Black Belt is well symbolized in this inspiring portrait of "Real Seth" and his owner, L. Chatterton, of Greensboro, Ala. "Real Seth" was first prize bull at Demopolis and Birmingham, 1950. Chatterton lived in Montana before he saw the Black Belt. Seeing the Black Belt caused him to buy a farm there, move his herd, and establish the Montabama line. The picture was made by Hermann Postlethwaite, who also is responsible for the picture story, "Green Magic," in this issue.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

I Got Out On The Land



Flood control measures on the small Nepper watershed in Monona County, Ia. Stripcropping, channel improvement, road chute, drop inlet, all help.

An Extension worker of the University of Illinois reports on a six-months study of soil and water problems and the work of districts in meeting them.

By E. D. WALKER

DID you ever load your car with clothes and equipment and with your wife leave home for a six-months' tour of duty? I had that novel and exciting experience two years ago when I was given a half-year leave for travel in a number of states to study the problems of soil and water conservation and the methods of meeting them. In line with this assignment, I wanted especially to

1. Take a broad look at soil and water conservation problems and programs in different areas;
2. Pick up new ideas in soil conservation education;
3. See how soil conservation districts are functioning in relation to cooperating agencies;
4. View at first hand pertinent developments in research;
5. Find out how flood control projects operate most effectively.

Following a definite itinerary, my travels took me into 31 states and the District of Columbia in this country. The route covered the Southwest, the South, the Midwest, and portions of the East and New England. I visited 18 land-grant colleges, a like number of experiment stations, and inspected field work on many farms and ranches. All along the way I was in frequent touch with district, state and regional offices of the Soil Conservation Service. In addition, the journey included travel in nine states of Mexico and three eastern provinces of Canada.

During the entire period I had the assistance and cooperation of the finest people in the world. Among these "finest people" were many Soil Conservation Service personnel ranging from conservation aides to the Chief of the Service, himself. There were also county agents, extension soil conservationists, extension specialists and other college staff members, soil conserva-

Note.—The author is extension soil conservationist, Department of Agronomy, University of Illinois, Urbana, Ill.

tion district directors or supervisors and other farmers and ranchers. All were most cooperative in telling me of problems, programs or accomplishments and in showing work in progress. A few examples may serve to give you a fleeting glimpse of some of the things I saw. In some cases my wife joined in the inspection of the soil conservation work. At other locations she was busy looking over the college campuses and other points of interest.

In Oklahoma the Washita river is at present a fairly normal stream, but it is tending to assume the typical western river pattern of a wide, silt-choked channel with no distinct banks and consequent frequent flooding of the adjacent bottom lands. The channel has widened two or more times in recent years and valuable land in the valley is thus being lost. It is to prevent this condition from developing further that the flood control program in that area has been started. The control work is being done on the small tributaries rather than on the main stem of the river itself. Detention reservoirs, or so-called "dry dams" are the principal structural measure being used. Jack Adair, SCS planning engineer on the Sandstone creek project which was in active progress at that time, gave me a good look at work going on there. On the

65,000-acre watershed of the Sandstone 24 reservoirs had been planned. Ten were completed and the remainder under construction. Hill farmers are urged to use seeding and controlled grazing on the range land and terracing on the cropland to reduce silting. Construction of a particular reservoir is delayed until the conservation measures on the watershed reduce the silt load to an allowable figure. Both hill and bottom land farmers in the watershed are organized into the Sandstone Watershed Flood Control Association. It is a voluntary organization which cooperates with the Extension Service and Soil Conservation Service on educational work. It also secures the easements on the sites for the dams and, in cooperation with the soil conservation district and Soil Conservation Service, is responsible for maintenance.

County Agent Jack Tejada, in company with the owner, showed us all over the 10,000-acre A. J. Irwin sheep ranch at Santa Rosa, N. Mex. Despite the use of improvement practices, the ranch was carrying only one sheep to 32 acres. The range improvement measures were aimed mainly at water conservation and included contour furrows to increase the infiltration of water, ponds (tanks in that country), and diversions in the water courses to spread the excess water out over the range where it could soak in instead of running off. Vegetation was decidedly better adjacent to the furrows and where the water-spreading had been used. Incidentally, Jack Tejada was doing a good job of human conservation with the Spanish-American boys who are not so much interested in farming but are natural craftsmen. In their 4-H project, the boys were doing leathercraft



Irrigating cotton land on Goodyear farm,
Litchfield Park, Ariz.





Blue lupine in a pecan grove in Georgia. The soil is magnolia sandy loam.

and making large wooden signs for ranches, churches, and homes.

Los Angeles County, Calif., includes some 21½ million acres. Agriculture covers a wide range from dairy farming, poultry farming and dry farming to specialty crops like citrus, avacados, and walnuts. With this great diversity, problems are so numerous that in the extension set-up, I found a county extension director, three home advisers, and 12 farm advisers (county agents). One of these men, Kenneth Smoyer, took me out to San Fernando Valley to see the flood control work being done there. Charles M. Thomas, SCS engineer, explained the project which has for its purpose not only the prevention of water damage to the city of Los Angeles but is also designed to keep rocks, silt, and gravel from going into the city streets. This is an excellent example of cooperation. The cost of improving the creek channels in the watershed is shared by the city of Los Angeles, the county flood control district, and the Soil Conservation Service. The soil conservation district, with the assistance of the Soil Conservation Service, oversees the construction work.



Farmers cooperate by constructing smaller ditches in the upper parts of the watershed as group enterprises, and by applying land use and management practices on individual farms. Apparently little educational assistance had been given by the Extension Service in the

development of this project.

In the Highland Hereford country at Alpine, Tex., I found as technicians in the Brewster County Soil Conservation District, Tom J. Burlison, Jr., work unit conservationist, and R. F. Pierson, Jr., range management conservationist. The district was quite new and had 114 cooperative agreements which included only 400 acres of farm land. The principal interest in the district, therefore, is management of range land, which falls into land capability classes VI to VIII. The land is further classified according to percentage of good native range plants still remaining and is rated for its potential carrying capacity. The rancher is helped to determine the amount of stock the range should carry and is also given information on proper grazing management, which is the No. 1 conservation practice. Fencing of the range into several suitably sized fields is encouraged to make grazing management and controlled breeding possible. Ranchers have thus increased the calf crop from a low of 65 percent up to 97 percent and the weight of calves at selling time from 300 pounds to around 500 to 550 pounds.

Charlie Ashford, extension conservationist, and C. B. Anders, state conservationist, made me most welcome in Mississippi. Charlie took me to Newton county at Decatur where we met the staff, including Joe Taylor, county agent, and O. L. Turman, work unit conservationist. The county supervisors have an unusual project. Several years ago they bought 40 acres of practically abandoned land for \$900, the purpose being to develop it as a demonstration of proper land use and also for the production of scarce forage seeds. The farm is in charge of a committee from the board and the conservationists give it service the same as other farms. The tract, called "Green Acres," was all in forage crops. Seed was being harvested from sericea and crimson clover and additional returns came from grazing cattle on the land. Gross income in 1950 ran \$3,500.

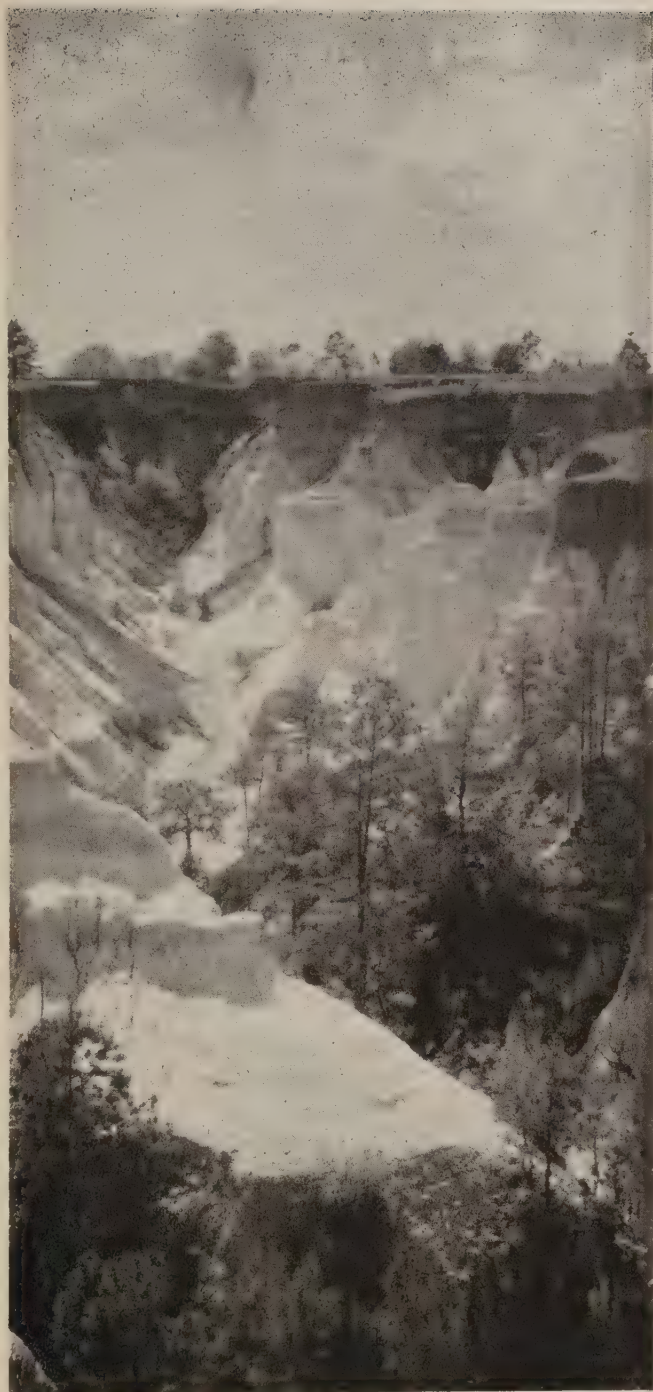
At Meridan, Miss., Bob Hoit, district conservationist, and E. E. Freeman, work unit conservationist, took me out to visit several farms where fescue and Ladino were being used with good results. The County of Lauderdale and the City of Meridan were much excited over the annual "calf scramble." This appeared to be a novel way of increasing use of purebred live-

stock and getting more interest in conservation. Breeders and businessmen contribute purebred beef bull calves of about 300 pounds weight. Boys of high school age are recruited from 4-H and vocational agriculture classes. A group of calves and twice as many boys are turned loose in a good sized ring. The boy who catches and halters a calf and leads it before the judges may keep that calf. Since several classes are provided, it all adds up to quite a show. The conservation angle is that the boy agrees to give the calf good care, including the improvement of 2 acres of pasture for its use, and to show the calf the following fall. The project had gone long enough, 4 years, that a steer sale of offspring from the first bulls distributed was held that year. Another event was the display of a family including bull, grade cow, and resulting calf. The calf scramble was made a real gala day, with big parade, steer sale, milking contest, steer riding, bulldogging, cakewalk, and dance.

In Alabama, with the aid of W. H. (Willie) Tucker, district conservationist at Demopolis, George P. Walthall, district conservationist at Montgomery, and Sam Doughty, extension conservationist, I got a picture of the change which is taking place in the South. I saw thousands of acres of land that had lost most of its topsoil through 100 years of cotton farming and which had been converted to good legume-grass pastures on which were fine herds of dairy and beef cattle. The possibility of having on the same field one set of plants which produces winter pasture and another set which comes on for summer pasture was very appealing to a man accustomed to the long feeding period during northern winters. Autauga County was beautiful with its thousands of acres of reseeded crimson clover in full bloom, and, of course, other counties from Mississippi to Georgia made much of this crop.

The high spot for me in Georgia, made possible by Ernest Thomas, extension conservationist, was a meeting of the State Soil Conservation Committee with the supervisors of the Ocmulgee Soil Conservation District at Perry. The state committeemen are all farmers, but meeting with them was an advisory committee which includes the heads of the various cooperating

Note.—Photographs from the Alabama area mentioned by the author are used on our front cover this month and also in the center spread, "Grass Magic."



An arm of Rutledge Canyon in Stewart County, Ga. A sandy subsoil makes gullies hard to stop when once started.

agencies in the state. Present the day I was there was the director of Extension, State PMA chairman, State BAE representative, State conservationist, SCS, director of Research at the University of Georgia, State agricultural commissioner, head of Farm and Home Administration, and chairman of the State Association

of Soil Conservation Districts. All present took an active part in the discussions, but final action on the items of business was, of course, left to the members of the state committee. Present to report the meeting, which included a tour of a well-handled farm nearby, was Miss Susan Myrick, reporter for a Macon paper and author of a third-grade reader, "Our Daily Bread."

After a good visit with Dr. T. S. Buie, regional director at Spartanburg, Wiley Hampton, of project plans division, and other members of the staff took me out to the Midway community in Cherokee County, the home community of E. C. McArthur, first president of the National Association of Soil Conservation Districts. The community comprises 4 square miles operated by 31 families, all but two of whom were at that time soil conservation district cooperators. We rode several miles with the land on both sides of the road terraced and strip cropped with good pastures and other good conservation practices. On one farm we could see from a high spot 18 of the 20 recommended practices for that area in use on the land.

The Cedar Creek forest and pasture project near Fulton, Mo., is a good example of land reclamation through the use of pasture grasses and legumes. This is an old L. U. project, comprising 13,000 acres which, when purchased in the thirties was badly washed and gullied. In fact, about half of it was abandoned. I saw the tract in 1941 and it was a sorry sight at that time. Technicians of the Soil Conservation Service, to whom the tract was assigned, leveled the gullies to some extent, gave a moderate soil treatment, and seeded a pasture mixture. The result is a fairly good pasture which is rented to neighboring farmers and produces 150 to 200 pounds of beef per acre. It could do better with more soil treatment, but it looks wonderful in comparison with gullied tracts outside the area which have had no attention.

In Clay County, Mo., I found grassland farming being carried out to an unusual extent for the Corn Belt. B. F. Morris, conservation aide at Liberty, Mo., said the district at that time had 250 cooperative agreements, which provided for an average of 75 percent of the land to be in grass. He took me to two farms, one of 580 acres and one of 800 acres, all of which were in forage crops, with wonderful fields of alfalfa-

brome-Ladino, orchard grass-alfalfa-Ladino, fescue-trefoil, and fescue-Ladino. Most of this land could have been cropped if the owner had so desired.

In the Little Sioux flood-prevention area in northwestern Iowa, a special educational effort has been made by employing assistant county agents in soil conservation to assist with the program. I was taken over a portion of the project by assistant county agent Kyle Peterson of Monona County, assisted by L. T. Larson and Robert Proctor, soil conservationists of the Sioux City flood control office. There is a double problem in this area—control of serious gullying in the uplands and siltation of drainage ditches and flooding of the lowlands. At that time the work was being carried on by watersheds. The objective of the over-all project committee was to have at least 70 percent of an area under district agreement and 70 percent of the recommended practices applied on the land before any special flood control work was started in a watershed. This rule had been set aside in some cases in order to use current appropriations. We inspected the work on several watersheds, which included shaping and seeding of waterways, tube and riser detention earth dams, and concrete chutes.

In New York, Hugh Wilson, extension conservationist, arranged for me to see the flood control work at East Aurora. Here an attempt is being made to cut down the silt load in the creeks back of Buffalo which are dumping 200,000 cubic yards of material into the harbor each year. District conservationist Ed Keil is in charge of the program, the number one effort of which is to get the farmers in the watershed to improve their soil management practices as much as possible. Much of the land is already in timber and pasture, but an attempt is being made to get better management on this and the remaining acreage. Special flood control construction work includes channel straightening and stream-bank improvement to reduce erosion. The outcome of this project will be interesting, as the army engineers have a direct check on results in the amount of silt that has to be removed from the Buffalo harbor.

At the Beltsville, Md., station, W. W. Steiner, nursery manager for the Soil Conservation Service, showed me his new "Natob" lespedeza bicolor which produces more seed and larger

seed than the ordinary bicolor. The nursery is also producing a number of other plants which have uses in the conservation program. An interesting demonstration has recently been started which includes two tracts; one with fence rows, ditches, and stream banks kept clean of all vegetation, the other with field divisions and other areas planted to multiflora rose, bicolor lespedeza, and other shrubs. A check will be made on the effect of the two systems of management on wildlife population.

Potatoes dominate the farm landscape in **Aroostook County**, in northern Maine, as corn does in Illinois or wheat in Kansas. The extensive use of this cultivated crop creates conservation problems, particularly since the soil is not highly fertile and much of it is sloping. R. H. (Randy) West, work unit conservationist at Caribou, gave us a fine look at the area from Presque Isle to Van Buren. About 1,000 of the 3,000 farmers in the district were cooperators at that time. Good farmers run one-third to one-half of the land in potatoes with small grain and meadow as the remaining crops in the rotation. On sloping land, contouring or contour strip cropping is used. Farms near Van Buren laid out under the old French survey are long and narrow—perhaps 10 to 15 rods wide and a mile long. This interferes greatly with use of contour cultivation.

As you might expect from the instances given, I could not but be impressed by the wide variety of problems which confront workers in soil conservation in the United States. These problems must include those of the potato growers in northern Maine, the fruit men, dairymen, and other farmers of southern California, the orange growers and cattle raisers in Florida, the wheat growers in Washington, and of all the farmers in the country between. There must be answers to questions of land use, soil treatment, drainage, crop adaptation, rotations, control of water and wind erosion, pasture and range improvement, irrigation, forestry, water conservation, and wildlife. A matter of general concern wherever soils are being cultivated is that of organic matter and soil tilth. "We need more organic matter to put life into the soil" was a common statement in the Midwest, the irrigated sections of the Southwest, the Black Belt of Texas, and throughout the South, in Pennsylvania, Connecticut, Maine, and on into Canada.



On the Upper Whiteshield watershed, north fork of Red River, near Hammon, Okla. Drainage area 290 acres. All mechanical conservation measures have been applied; all land given conservation treatment.

But despite the immensity of the conservation job, it is most encouraging and heartening that in this country we have through the years, and especially during the last 20 years, accumulated a fair amount of the know-how needed to cope with the situation. At the same time we have assembled and developed in the Soil Conservation Service a staff of men who are competent to assist farmers in planning and applying the necessary conservation measures. As I met and associated with these men from place to place, I was struck by their serious sense of responsibility for helping save the soils of the country, and the feeling of pride which they had in showing good examples of farmer accomplishment. A brief visit to our neighboring countries convinced me that we are most fortunate to have a going program in soil conservation as it is carried on by the Soil Conservation Service, Extension Service, and cooperating agencies. While Mexico has a national soil conservation service, it is not adequately financed nor well enough organized to deal properly with the tremendous educational and technical problems which that country presents. Canada, I was told, had no soil conservation program of national or provincial scope. This does not mean that nothing is being done in this field, but that there is no program comparable to ours.

Soil conservation districts constitute another bright spot in our soil conservation picture. I

found them to vary from state to state in size, organization and to some extent in effectiveness. A common pattern is for the district to cover a single county. However, many districts, particularly in the West, are limited to a relatively small watershed and in the South I found what seemed to me unwieldly organizations covering five to nine counties. But regardless of size or shape, the districts as I observed them are, in general, the same independent, democratic type of organization. The governing bodies of these districts are made up of men who have a sincere interest in conservation and who are not only pushing the program publicly but are also using it on their own farms. I have always admired the Illinois directors for their willingness to serve and give time and effort to leadership in the movement. I was glad to find the same kind of men in the other states.

A few of the directors or supervisors stand out in my memory—

R. C. Longmire, supervisor of Garvin County, Okla., who operates a corn, alfalfa and cattle farm in the Washita Valley. He has interested the Paul's Valley Chamber of Commerce in giving \$3,000 to \$5,000 a year to the district for dinners, awards, field days, and other activities.

Neville Haynes, supervisor of the 4-million-acre district in Brewster County, Tex., the biggest county in the biggest state, is an enthusiastic booster and is not only doing a good job on



A renovated pasture of alfalfa-brome-Ladino on an 800-acre Clay County, Mo., farm which is all in grass. The Angus cattle are the main outlet for the forage.



Grain and other Midwest products move out to sea through the ship canal around Longue Sault Rapids in St. Lawrence River, Province of Quebec, Canada.

his range land but, as extra feed insurance, has 40 acres in alfalfa and mixed pasture under irrigation.

Dave Yarborough, supervisor in Autauga County, Ala., is reclaiming eroded land with kudzu and plantings of pine trees which promise to make a real return.

Henry Feene, of Freeborn County, Minn., has been the prime mover in a successful drainage project.

Hugh Chamberlin of Alleghany County, N. Y., says his work with the district has been a liberal education for him. That district is outstanding for its use and successful operation of a large amount of heavy machinery in serving the cooperators.

Tom Hardy, chairman of the board in Chester County, Pa., is also chairman of the Brandywine Valley Association and a member of the county extension board. He operates 1,000 acres of land, much of which is in grass for beef cattle.

Dennis F. Getchell, a member of the board in

Central Arcostook County District in Maine, was in the Chicago meeting when the National Association of Soil Conservation Districts was formed. As an example for other farmers in that area, he has retired part of his farm land to pasture for his Hereford cow herd.

It is impossible in the space I have to summarize for you the volume of information on soil conservation accumulated during this six-month period. Among the more important conclusions, however, are the following:

1. The outstanding development in the field of soil and water conservation and management as I saw it is the decided trend toward the seeding of more grass and improvement of the present acreage of grassland. This trend was quite apparent wherever I went, although it was most striking in some areas, as in the old Cotton South.
2. There is general recognition by farmers and professional workers of the need for greater educational effort in the campaign to induce farmers to make the best use of



Santa Gertrudis cattle from King Ranch in south Texas graze on the 10,000-acre Buck and Doe Ranch in Chester County, Pa.

our soil and water resources. This is true not only in the United States, but also in Mexico and Canada. Many variations of the tried and true methods—lectures, demonstrations, field days, contests, charts, slides, motion pictures, publicity—are being used effectively.

3. Soil conservation districts operate most effectively where the farmer-directors or supervisors take the lead in the program and seek and secure cooperation and assistance from all available sources, including federal and state agencies, schools, churches, civic groups, and other organizations. Instances were observed where professional workers, particularly those of the Soil Conservation Service, were taking the lead rather than the farmer leaders. The happy situations, however, were those where the farmers were in the saddle directing the program.
4. Research stations are doing a fine job of working out practical answers to pressing problems of soil and water management. During the years we have accumulated a fair amount of know how, but we are ever in need of finding not only answers to new problems but new answers to old problems. We will be smart if we give the research stations more of the funds they need.
5. The effectiveness of the flood control projects I observed appeared to depend in large measure on the use by farmers of conservation measures on their land in the upper reaches of the watershed. Since this part of the program is entirely voluntary, intensive educational effort is essential in achieving the widespread acceptance of needed conservation practices. Careful attention should be given to this angle in the operation of flood-control programs.

The experiences I had while on this leave, the contacts I made along the route, and the information I secured on the various phases of soil conservation are proving most useful in my work since I returned. I can heartily recommend this means of taking a long look at soil conservation.

DISTRICT BOOK FUND.—The governing body of Washington's Whatcom County Soil Conservation District gives \$25 to the county librarian to buy books on conservation and related agricultural subjects. The books, which are for both town and country people, are loaned out through Bellingham city and Whatcom county libraries and by bookmobile. A new addition to the "conservation shelf" was "Soil Conservation Districts in Action," by W. Roberts Parks.

Here are some of the books being bought with the district's library fund: "Let's Find Out," by Thron; "The Politics of Agriculture—Soil Conservation and the Struggle for Power in Rural America," by Hardin; "The Dammed Missouri Valley," by Baumhoff; "Soil Development," by Faulkner; "Good Land from Poor Soil," by Hewitt, and "Our Garden Soils," by Kellogg.

Alfred R. Draig, assistant county librarian, also loans out an average of two soil conservation films a month. He says films are in demand from schools and groups of all kinds.

He also has a complete line of booklets, government bulletins, and pamphlets for general distribution.

GOOD BUSINESS FOR BOTH.—How Waupaca County, Wis., and the Waupaca Soil Conservation District teamed up in a mutually profitable enterprise was told recently by a banker who played a leading role. It began when banker Joseph Hartz got "dragged into" a county tour to arouse businessmen to the importance of soil conservation. "All I knew about it," said Hartz, "was that 65 percent of the business of our Manawa bank was with farmers. A banker likes farmers who make money."

The upshot of the tour was to convince and convert Hartz. He called in other bankers, arranged a goodwill banquet for the county board, secured a top-notch speaker. As a result, the board appropriated \$15,000 for a highway grader that could be used for soil conservation work.

A schedule of fees was devised, and the farmers paid the operator. The township chairman approved the jobs. After seeing how the first grader was paying for itself and yet was available for considerable highway work and snow removal, the county purchased two more machines with soil conservation work getting top priority.

SOFT BED SAVED JOHN.—John Temple was doing some work on a tractor in a freshly plowed field on his farm in the Atascosa (Tex.) County Soil Conservation District near Pleasanton. Suddenly the tractor took off. The rear wheel ran over Temple's body its entire length, from foot to forehead.

Temple picked himself up, brushed off the dirt, and went on with his business. He said later: "If that field hadn't been in Hubam clover for three consecutive years, I might have been killed. The soil was so mellow, however, that the tractor pressed me into the soft ground. I was scarcely bruised."



P. G. Compton and Caley Peas.



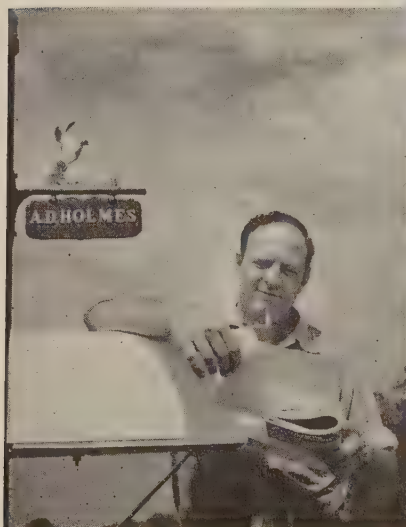
A. D. Holmes, Jr. and Technician Tucker examine pasture. The mail brings Holmes a fat milk check.



Registered Herefords graze white dutch and dallis grass on farm of L. Chatterton, Greensboro, Ala.

Home of Sheldon Sheffield. All 3,438 acres are in grass.

White dutch and dallis grass on the old Weaver place in Perry County.



gic



Abandoned cotton gin in Marengo County—
reminder of old era.

as almost entirely
cotton, grown in
oil and its vitality
prosperous. It is a
reseeding legumes
techniques.



The new order: 27 farmers own this milk-
receiving station.

farm of L. Chatter-



This plant converts 40,000 pounds of milk
into cheese each day.

Legumes make honey, and bees needed
for good seed production.

h and dallis grass on
place in Perry County



Herefords on white dutch and dallis grass, farm of Mrs. Emma
Meadows, Faunsdale, Ala.



Once in row crops, now in pasture, this creek bottom land is
now high in beef production.



Jerseys graze on Caley Peas and Johnson grass on farm of Jim
Russell, Gaunsdale, Ala.



Fifteen hundred acres support 700 mature animals and 200
calves on Compton farm.

Eighty acres of legume-grass pasture support 60 Jersey milk
cows on Holmes' farm



DISTRICT PROFILE

HON.
HOWARD S. MILLER
of
KANSAS

HOWARD S. MILLER, whose home is near Hiawatha, Kans., started out to be a lawyer, but went back to the farm. Now he has taken to the House of Representatives at Washington the intimate knowledge of soil and water conservation that has been gained from actually working with it. He put the conservation measures on his farm himself.

He has been in the Brown County Soil Conservation District for over a decade. He has established a complete conservation plan on the 480-acre farm he bought in 1943, and is well along with the job on 160 acres he bought later. He believes he has more miles of terraces than anyone else in his soil conservation district.

When the 1952 Goodyear contest was ended last June 30, the Brown County Soil Conservation District was the Kansas winner. And who was one of the three outstanding conservation farmers selected to go with the district supervisors on the trip to Goodyear farms in Arizona, which was the winners' award? You guessed it—Howard Miller. So, early in December, he spent a week with district supervisors and outstanding conservation farmers from a large part of the United States.

Now that he has gone to Washington, his son, Wendell, has left the post of county attorney at Falls City, Nebr., to operate the farm. "Does he have the same ideas about conservation as I have?" Miller repeated a question. "Well, if he didn't he'd not be operating the farm."

Born in Pennsylvania, Miller has spent 70 of his 73 years in Brown county. He was reared on his father's farm, and after high school went to the University of Nebraska from which he was graduated in law.

"I never practiced law, however," he said, "because soon after I got my degree, my father died. Mother was left with six minor children and a mortgage on the farm. I came back to the farm and operated it until I bought this place in 1943."

There are three Miller children—Wendell, Russell, who is a dentist at Hiawatha, and a

daughter, Mrs. Ernest Holnbaum of Hiawatha, who is the congressman's hostess in Washington. Mrs. Miller died in 1948.

The land he bought in 1943 is Mrs. Miller's home place, part of which had been homesteaded by her grandfather and the rest purchased. Thus, this land has been in the same family since it was settled. He is the only one to operate it who was not a direct descendant of the pioneer. Now one of the great-grandsons is on the farm.

"Those people were good operators," Congressman Miller says. "They took care of the land. What that meant can be seen now. Half of the 160 acres that I added to the farm should be the best 80 on the place, but it isn't. It looked good on the surface, but when we built terraces we found how thin the topsoil had become.

"We farm this 80 along with the original farm and do not harvest the two areas separately, but you can notice the difference. Production on the 80 is visibly below that on the other land, which has quite a bit deeper topsoil.

"Of course, some soil was lost from the original farm. You don't farm sloping land like this without terraces without losing soil, but you don't lose so much if you take care of the land."

Congressman Miller, working alone, started long ago to try to halt erosion on his home farm. But, he began at the wrong place, at the lower part of the slope.

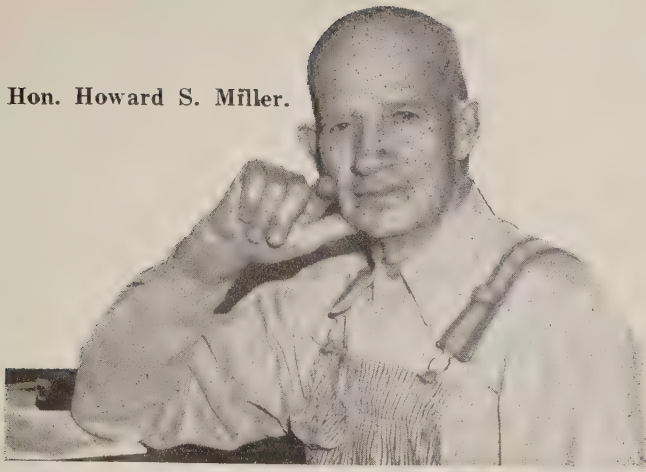
"I became a champion ditch filler," he comments. "I'd fill up ditches, and they would wash out again. I didn't realize that by the time the water reached the lower part of the slope, it had already done its damage."

He started cooperation with the Brown County Soil Conservation District soon after it was organized in 1940. But he hardly got under way with his conservation plan before the home farm was sold and he bought the present place.

This farm was already under cooperation with the district, and Mrs. Miller's brother with help from the Soil Conservation Service had developed a conservation plan. Contour farming had been started. The Congressman began to put his conservation plan on the land as soon as he acquired it. When he bought the additional 160 acres he got busy with a conservation plan here, too.

Today the Miller farm has 30 miles of terraces, 20 acres of grassed waterways, and some

Hon. Howard S. Miller.



farm ponds. All farming operations are on the contour. A bromegrass-alfalfa mixture has been worked into the rotation. Tillage is done with chisel-type machines and disks in order to keep stubble at or near the surface. Two drop-inlet structures have been built to let water down from the waterways into a stream channel.

"It is somewhat more difficult to farm this way," he concedes, "but the returns and the saving of soil make the effort well worth while. The newer equipment makes the job easier. And, as one learns to farm this way, he picks up little tricks that smooth things out. I know, for example, that I learned the knack of taking care of point rows from a hired man who had learned it somewhere else.

He feels that people have been slow to realize the amounts of soil they are losing. One can see little following a storm. But when the rain actually is falling, what happens is inescapable. He knows from experience. From a hired man he learned that a fireman's hat, added to his other rainy-day clothes, could make working in the rain no problem; water didn't run down his neck.

"So I got such a hat shortly after I bought this farm," the Congressman recalls with a chuckle. "Then, when there was a hard rain while the wheat was still small, I went out. I saw water and soil getting away fast. Right then I made up my mind to terrace the land as rapidly as possible."

It was only a short step from his experiences on his own farm to the vision of watershed treatment. Miller is chairman of the Walnut Creek Watershed Association. After going through the back-breaking task of trying to control erosion damage at the bottom of the slope, he

realized that he must start at the top. He has seen "dry ditches" develop where there were no gullies, culverts replace bridges, and bridges replace bigger ones.

"We now have 25- and 30-foot bridges where there previously were two-plank culverts," he says. "I had the experience during my teens of helping replace with four-plank culverts some of the two-plank culverts that had become too small.

"Right beside this farm is a 20-foot bridge that was installed after a 24-inch culvert was washed out—washed right down onto my land. That pipe is now the outlet for one of my ponds."

He feels that it is important on small watersheds to establish complete treatment, both structures and vegetative and cultural measures in order to learn their effects on water flow.

"We can see some effects on our own land," he said. "Water from part of this farm passes through a culvert in the road. Formerly the culvert worked to full capacity. Now it rarely runs half full.

"The flow of water definitely has been reduced, but we don't know how much of the reduction results from more water soaking into the ground because of conservation and how much results from a slower rate of runoff. Accurate measurements are needed badly."

By conservation treatment of the land, Congressman Miller means treatment according to its needs. Single practices, he contends, will not bring the desired results on sloping land. Even on a single farm, not all fields can be treated alike.

Miller believes that soil conservation and control of water are inseparable problems and must be handled jointly. He believes in beginning operations where the rain falls. He is thoroughly convinced that we cannot know what measures are necessary and practical on the main streams and rivers until proper measures have been taken on the land where the rain falls and where the greater amount of damage is done.

"It is my opinion," he concludes, "that the greater part of flood damage occurs within one-half mile of where the raindrops fall. It is essential that we get the soil and water conservation job done, for the soil we are letting wash away can never be replaced."

—HAROLD J. SWAN

Now Districts Compete Throughout Nation



Big western hats—and a radio interview.

EXPANSION of the Goodyear Soil Conservation Awards program to a country-wide basis has been announced by A. G. Morrill, director of the program.

Speaking to a banquet audience attending the National Association of Soil Conservation Districts' seventh annual meeting, Morrill stated that his company was following the lead of

increased interest in soil conservation as indicated in President Eisenhower's first state of the union message to Congress.

The national awards program, starting July 1, is intended to inspire voluntary soil conservation district workers, farmers and ranchers to even greater efforts to preserve the nation's topsoil.

Members of the advisory committee are Dr. Robert M. Salter, chief of Soil Conservation Service, chairman; C. M. Ferguson, director of extension, Department of Agriculture; Waters S. Davis, Jr., president of National Association of Soil Conservation Districts; Wendell R. Tascher, extension soil conservationist, Department of Agriculture; and H. Wayne Pritchard, executive secretary, Soil Conservation Society of America.

Districts are rated for a 10-month contest period by means of a score sheet covering district governing-body activity in the following categories: administration; conservation education, planning and application (actual accomplishments on the land); organization and activities of committees to assist district govern-



Watching the rodeo in a proper western setting.

Jovial interlude
on a bus trip.

Chow line in Arizona.



ing body; and general district program development and progress.

Goodyear has sponsored a soil conservation awards program on a regional basis in 17 states for the past 6 years. The new competition will be patterned after the old with 100 persons from all 48 states eligible for grand award vacation trips to the Wigwam Inn, on Goodyear Farms at Litchfield Park, Ariz., in December 1954.

All organized soil conservation districts in the United States are eligible to compete. One member of each winning district and the top cooperating farmer or rancher named by the district will make the vacation trip to Arizona.

Non-partisan judging committees, selected from outstanding exponents of soil conserva-



An apprentice farm plan is explained.

tion in the various states, will select winning districts on a point system of rating actual accomplishment.

Winners will be announced at the seven regular regional meetings of the National Association of Soil Conservation Districts. Plaques will be awarded at these conventions to the first and second place winners from the competing units.

Actual competition will be over a 10-month period with 2 months for judging. State soil conservation districts will compete with each



Modern riders of the purple sage.

other for first and second place awards with the following exceptions:

Vermont and New Hampshire will compete as one unit. Connecticut, Rhode Island and Massachusetts will make up another unit. Dela-

ware and New Jersey districts will compete together for the grand award.

The soil conservation districts of Texas will be divided into three competing units and the soil conservation districts of Illinois, Iowa, Kansas and Nebraska will be split into two competing units each.

Certificates of meritorious achievement will be given to a thousand outstanding supervisors and cooperators after the close of the contest year on April 30, 1954.



The Wigwam, where the winners stay.

Montana Recovery

IN 1938 while teaching in a rural high school in Montana, George C. Borchers contracted "ranch fever." To alleviate the pains of this disease, he moved on to a piece of land, a ranch near Frenchtown, one of Montana's oldest white settlements.

There was water here and the water was "free." But George found that free water didn't mean free irrigation. The land was rough; it took a good 10-hour day for a man to irrigate 3 acres. At that rate it would take all summer to get over the 160 acres for which he had water. Trying to get the land ready for irrigation took so long that George was always late getting his crops planted. This delayed harvesting and there was danger of frost.

After about 5 years of such struggle George began to despair, but he still wanted to stay on the land. He knew something had to be done.

With technical assistance provided by the

Soil Conservation Service through the soil conservation district, and financial assistance through the Agricultural Conservation Program, he undertook a complete conservation program. This included leveling so that the land could be properly irrigated, a complete change in the irrigation system, proper drainage, clearing some of the tract, and range management.

That was in 1945. As a result of these measures, he has doubled the yield of hay and forage, and increased grain yields about 50 percent.

By planting time in 1952 George had finished leveling all of his irrigated land. About 80 acres was permanently in border dikes. As illustrative of what this means, one hired man and a 14-year-old boy irrigated 62 acres of hay and grain in 3 days. There was not a burned-out or drowned-out spot in the entire 62 acres.

Another conservation problem caused trouble. A creek ran diagonally across the property, and in the past, each spring it would decide to take a new course. This meant that more land was being cut away right along. With SCS advice and engineering, and assistance from the ACP, this stream was brought under control with riprap and by strengthening the channel.



FOR OUTSTANDING SERVICE.—Roy J. Turner, former Governor of Oklahoma, is shown receiving an award from L. L. "Red" Males, chairman of the Lay Conservationist Awards Committee of the Oklahoma Association of Soil Conservation Districts. In addition to being a member of the governing body of the Upper Washita Soil Conservation District, Males also is president of the Oklahoma Bankers Association. He lives at Cheyenne, Okla., and is president of the Security State Bank there.

Both of these gentlemen are enthusiastic supporters of watershed treatment for flood prevention. Males is the man who "sparkplugged" the work on Sandstone Creek and makes talks throughout the state in behalf of upstream flood prevention. He participated in the Washington conference on flood prevention.

Governor Turner is a district cooperator who has done an outstanding job of conservation on his nationally famous ranch near Sulphur, Okla. He also has given generously of his time, talents and money to further the work of soil conservation districts and upstream flood prevention.

The presentation of awards to lay conservationists was a feature of the annual meeting of Oklahoma's Soil Conservation Districts in January. Three hundred twenty district supervisors, representing 75 of Oklahoma's soil conservation districts, attended. State legislators and friends of districts swelled attendance to more than 400 during the luncheon program, when talks were made by Senator Raymond, president pro tempore of the Senate, and James C. Nance, speaker of the House. Claude V. Thompson, Ada, president of the Oklahoma association, presided.

Other Oklahomans who won awards this year were—Mrs. John O'Neill, Marshall, Director of Rural Life, Oklahoma Diocesan Council, National Council of Catholic Women; Ferdie Deering, Oklahoma City, editor of "The Farmer Stockman;" Bruce Eagon, Tulsa, Farm Program Director, KOTV (TV only).

A total of 44 business and professional men have been thus recognized for outstanding service to the soil conservation district movement.

—HARRY M. CHAMBERS

Tops In '52!

*Enviably records in soil and water conservation are
made by the eight National 4-H Club winners.*

By G. L. NOBLE

THIS is the tenth anniversary year of the National 4-H Soil and Water Conservation Awards Program.

More than 1,300,000 club members have received training in the program since its inception in 1944. What some of these youthful conservationists have accomplished in stopping erosion of valuable top soil has helped influence their elders to do likewise.

Some idea of the achievements of members taking active part in this project may be gained from the records of the eight national winners in the 1952 program. Each of these top winners received a \$300 college scholarship from The Firestone Tire & Rubber Company, donor of awards in this program since its beginning. They also received, together with eight other sectional winners, all-expense trips to the 1952 National 4-H Club Congress in Chicago. Additional awards are a \$25 Defense Bond to the state winner in the junior division, and in the demonstrations phase the state-winning individual and the two members of the state-winning team each receives a fountain pen and pencil set.

At his company's breakfast for all 4-H delegates to the 1952 Club Congress, vice president, Raymond C. Firestone, said: "Naturally, we have a special pride in our 16 (sectional and national) winners in the National 4-H Soil and Water Conservation program, and, while we are proud of them as winners, I want them to know that we think of them as having accomplished much more than just winning a contest. In winning, they were upholding a great law—a law that has been basic to man's welfare and his existence down through the ages. This is the law

which bids us to preserve, and forbids us to waste, that which has been given us by divine providence—namely, our land."

Firestone was elected to the board of directors of the national Committee on Boys and Girls Club Work.

Brief outlines of the winners' records:

Eddie M. Folds, 18, of Granite Hill, Ga., started his soil conservation program by rebuilding a worn-out 400-acre farm with the aid of his parents, county agent and soil conservation technician. The program included test plots of lespedeza and crimson clover. First big strike from his soil-building work came in his fourth 4-H year when he was named district and state winner in his grazing project, and received a \$200 cash award for building check dams and terraces. That year he also took second in the district cotton contest. In 1950 he was state champion in 4-H field crops. During last summer's drought he had a month's kudzu grazing to carry over his 17 head of livestock.

Jack L. Robinson, 18, of Middletown, Ind., and his father have completely covered their 100-acre farm with soil and water conservation practices, which have more than doubled crop and grass yields. This, in turn, has made it possible to raise and fatten about 300 hogs a year from the 35 acres of corn grown. The grass lands also support a herd of 32 registered Herefords.

Ronald Elkins, 16, of Farmington, N. Mex., tackled the restoration of 15 acres of abandoned land his parents had bought with 143 acres lying between two rivers. The tract had grown up with cottonwoods and willows and become waterlogged with seepage. Using a bulldozer, carry-all and leveler, Ronald, with the help of his father and a brother, cleared and drained the land, making their own concrete tile. When the job was done, soil tests were made and grass

Note.—The author is director National Committee on Boys and Girls Club Work, Inc., Chicago, Ill.



Raymond C. Firestone (center) watches a demonstration by the 1952 winners of the soil-saving contest. Allene Ogan, only 4-H Club girl ever to win a sectional soil conservation award, holds the pitcher. Others, left to right, are Eddie M. Folds, Jack L. Robinson, Ronald Elkins, Milton W. Dufel, James William Harris, Paul M. Saunders, Bruce J. Gillin, and Jack Clouse.

slowly established on the entire acreage, which now provides grazing for a flock of 35 Hampshire sheep and a number of cattle.

Milton W. Dufel, 19, of Fonda, N. Y., took his first step on his father's 224-acre farm when he laid 2,000 feet of drain tile and cut some open ditches with his own equipment. It made possible working wet spots. He was helped in the planning by the district conservation office. Milton then plowed up a permanent pasture which had been grazed for 30 years without improvement, and planted a cover crop of rye, preliminary to fertilizing and reseeding. In 1951 the father-son team was named champion at the county crop show for its year-around program of liming, fertilizing, drainage and

crop rotation. In 1951 a farm pond was built and stocked with fish. A shrub border on the windward side of the farm was planted, and more than 1,600 trees have been set out in a 4-year program of reforestation.

James W. Harris, 19, of Greenville, N. C., seeded 10 acres of his family's 100-acre farm to permanent pasture in 1949 to support their 16 cattle. To prevent overgrazing, 21 more acres were seeded, this time with ladino clover and fescue grass. A 3-year crop rotation was laid out, and a program for raising hogs adopted which depends upon the use of new fields each year for farrowing and grazing, to prevent disease. Eight acres of woodland were cleared to provide new land for tobacco. Since the fields

are subject to drying out, an irrigation system which draws water from a canal running through the farm, was set up at a cost of \$2,500.

Year by year, starting in 1946, Bruce J. Gillin, 18, of Porter, Okla., and his father labored to restore a 200-acre upland prairie farm they bought 8 years ago. They built terraces, limed and leveled pasture and crop land, mowed weeds and applied fertilizer. Several ponds were dug, and dams sodded. Gullies were filled. In 1950, remaining idle land was converted into a refuge for wildlife. Oats and vetches were grown to catch fertility and keep soil from washing in winter. This year their corn showed the value of rotation. It had followed clover and stayed green longer, the ears were larger and the yield above the local average.

Paul M. Saunders, 19, Arrington, Va., has worked with his father to revamp the family's 563-acre farm, to make every part contribute maximum income. As the pair gained experience, they set a goal to have orchards, timber land and pastures on hills and crops on the bottoms, which skirt a river. Improvements which have come from the plan are a herd of registered Angus cattle on good pastures where mediocre cattle and pastures had existed; corn yields of 115 bushels per acre contrasted to 50; poultry and garden products in abundance; the planting of some 1,100 boxwood and other select ornamentals in a nursery for landscaping, the purchase of three tractors, and net profits of \$7,000. These changes were achieved by the usual soil saving practices of adapting fence lines to contour stripping, closing gullies, building check dams, removing forest areas from grazing and liming the land, fertilizing and re-seeding lands suited to grazing with legumes and grasses.

Jack Clouse, 21, and his father of Taylor, Wis., have radically changed the face of the hilly, gullied 200-acre farm bought in 1946. With the aid of the county agent and soil conservationist, the pair changed fields to conform better to the nature of the land, filled gullies, built terraces, applied lime and fertilizers and plowed deep and thoroughly. Increased income has been put into improvements. Jack says soil conservation is his best 4-H project, and it has kept him enrolled until the age limit for 4-H Club Work.

Orchard Reviews

By A. G. CARNS

TWO young El Dorado County, Calif., pear growers, Kenneth and Angus Sloan, have worked out a cure for their badly eroded land.

When the Sloans took over their 37-acre hillside orchard in 1946, silt was piled up to the crotch of many low-lying trees. Tap roots were laid bare, and trees were dried out. Gullies lined the slopes and crop yields were down.

For years water had been pumped to a high point in the orchard, and then to cross ditches. From the ditches it ran through downhill furrows to trees. Each time the water poured down the furrows, more and more soil washed away.

With the help of SCS technicians working with the Central El Dorado Soil Conservation District, the Sloans have increased production and improved the quality of their fruit.

"The technicians recommended sprinklers and a permanent cover crop on some 17 acres of our sloping and eroded orchard, says Kenneth. "They also told us we needed a winter cover crop on our flat land at the top of the slope. We started to work.

"First, we seeded white clover, Kentucky bluegrass, and redtop on the orchard slope. Next we planted the flat upper field to an annual crop of 30 pounds of barley, 30 pounds of vetch, and 4 pounds of sub clover.

"We also installed sprinklers—under-tree type—on the steep slope, and established ditches and furrows on the flat upland."

The Sloans drilled both the flat and sloping orchard areas in May 1946, after lightly disking and rolling, to lay a good seedbed. The seedings were made after spring rains and were sprinkler-irrigated so that the cover crops would get started before the fall rains came. Both seedings were fertilized with nitrogen and superphosphate at the time of drilling.

Note.—The author is work unit conservationist, Soil Conservation Service, Placerville, Calif.



Kenneth Sloan and son in orchard with cover crop.

The Sloans' cover crops and watering systems worked out so well that they seeded and improved another 10-acre area the same way.

What have been the results of these practices after 6 years?

First, instead of losing from one-fourth to one-half of the trees, nearly all of them were saved and are producing fruit.

Second, the soil has been stabilized and is not washing down the slopes as it did in the winter of 1945, when the barnyard at the foot of the orchard received a foot of washed-in soil.

Third, the deep rills and gullies have been replaced by grass, leaves, and sod, so that farming operations are easier and less expensive.

Fourth, the soil, formerly barren of organic matter and low in fertility, now has humus and is productive.

Fifth, the production of pears has increased 50 percent over the 1945 yield, and the quality of the fruit is better.

CONSERVATION ON PRISON FARM.—A 17,817-foot, \$4,389 tile drainage job done on 65 acres of cropland by the Greenbrier (W. Va.) Soil Conservation District,

at the Alderson Federal Prison for Women, is becoming an important factor in putting the 497-acre farm on a paying basis.

This farm had been in the red for many years largely because of single-cropping and excessive wetness. The drainage job—biggest ever undertaken in Summers County—is designed to provide more food and better food for institutional use, as well as more and better feed for livestock. Part of the production will go to other federal prisons.

Farm Manager Glen Mentor launched a variety of improvements when he took over in April 1952. He had had 10 years of successful farming experience and among other things, he is protecting and improving cropland with seedings of cover crops and alfalfa. Previously the land was planted to corn and left bare between crop seasons. Under the new system it will be used for vegetables, grass, grain and any other crops needed at the institution, and never left bare over winter. Manager Mentor and Edward Smith, SCS technician assisting the district, already note a marked improvement in quality and quantity of the produce.

CORN YIELDS REFLECT CONSERVATION.—John Wable, manager of a prison farm, won the 1952 Polk County (Iowa) Soil Conservation District contour corn yield contest with a yield of 161 bushels per acre. Of 36 contestants completing the contest, 29 had yields of 125 per acre with no single yield less than 100 bushels.

What Our District Has Meant To Us

By Mrs. J. B. MOSELEY

ONE of the worst fears I had when I was a girl was walking on a 10 or 12 inch plank across a gully 9 or 10 feet deep and about 9 feet wide with a bucket of milk in each hand. I had to cross this gully each morning and night to get to the cow pen.

After each big rain thousands of gallons of water came roaring down this and other gullies on our farm here in Brunswick County, Va. Of course, it carried the topsoil on with it. When these big rains came, we would have to haul corn stalks, wheat straw, and pine tags, and cut down pine bushes, to fill in and try to stop the water that washed over the various fields.

Often we hear of neighbors arguing, even not speaking for years, because one thinks the other has put up a fence a few feet over the line; and yet these same people go on year after year seeing ton after ton of their best topsoil carried down the gullies and finally emptied into the sea.

For 22 years after I was married we farmed, raising cotton, corn, and peanuts, and each year watching our land wash away. Our farm is hilly and many a day we hauled rocks, straw, and even logs to stop washes caused by ditches breaking over during heavy rains, but after each rain the washes came back. Our ditches were layed off with too much fall and lack of "know-how."

About five years ago we requested assistance from our soil conservation district and the local Soil Conservation Service man came by to see us. Well, like so many others through ignorance we said, "There's another fellow getting paid to ride around and do nothing." But, just 5 short years later we cannot find words to express our deep appreciation and gratitude for all that soil conservation has meant to us and to our community in general.

One of the greatest problems that our soil conservation district had was to make

us farmers see that we were not using each acre of land in the best way. We plowed and cultivated these hills regardless of how steep they were, and we ran our rows many times straight up and down the hill, which helped to speed our soil on to the sea. Our district, through educational meetings and other means of disseminating information, had to work awfully hard to put us in a mood to listen to their advice in order to help ourselves.

What were 5 years ago red galls and gullies on our farm, as well as on others in the community, are now rolling hills and fields lying smooth and green, growing ladino clover and orchard grass, alfalfa and lespedeza, or terraced and strip cropped fields now growing corn and wheat.

Grazing contentedly on these fields are 22 head of registered and grade Jersey and Guernsey cows, where our 16-year-old son is riding a horse.

Our soil conservation district has shown us many ways of improving our land by testing the soil, strip cropping, terracing, and in general employing better land use. In September of this year the conservationist assisted us in constructing a 1-acre farm pond and will also assist us in stocking this pond with fish. The pond has already been a great help in supplying drinking water for the cattle during the awful drought we had this fall. We are looking forward to fishing and boating for recreation and having fish to put into our 16-cubic-foot home freezer.

During the past five years through hard work, long hours, and the efficient help of our soil conservation district in keeping our soil at home where it belongs, we have been able to modernize completely our 7-room farm home, buy a new tractor equipped with turn plow, tillage plow, disc and mower, build a new 10-cow Grade-A dairy barn, get milking machines, and raise all our hay and grain with only the help of our 16-year-old son.

Soil conservation is the backbone of our farm. I believe our farm will prove to anyone that you don't have to wait a life time to cash in on conservation farming.



June 1953

Soil Conservation

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION •

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

★ THIS MONTH ★

WOOD-WASTE MULCHES IN HAWAII

By Robert E. Swanson

"QUAIL ROOST FARM"

By Barrington King

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WILDLIFE AS A MANAGED CROP

By Robert M. Salter

BOY SCOUTS WORK ON THE LAND

By Ted S. Pettit

FIND SERMONS IN SOIL

By H. N. Kelly

A LOOK AT THE RECORD

By R. W. Rogers

FOUNTAINS OF FREEDOM—A Review

By Adrian C. Fox

WELLINGTON BRINK

Editor

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BICOLOR EXPERIENCE.—Bicolor lespedeza is the No. 1 plant for quail in the South Carolina low country, says P. C. McClary, Jr., of Friendfield Plantation.

McClary started planting bicolor in 1946 as a part of his conservation program with the Georgetown Soil Conservation District. One-eighth acre patches were planted on well-drained areas in the woods and along the edges of fields. He now has 235 patches scattered over 2,500 acres.

In the past three seasons counts showed 67, 64, and 85 coveys of quail respectively. He estimated that during the past season 250 or more birds were killed on the property.

"We examined craws of birds killed and found only one last year that did not contain bicolor seed," McClary reports.



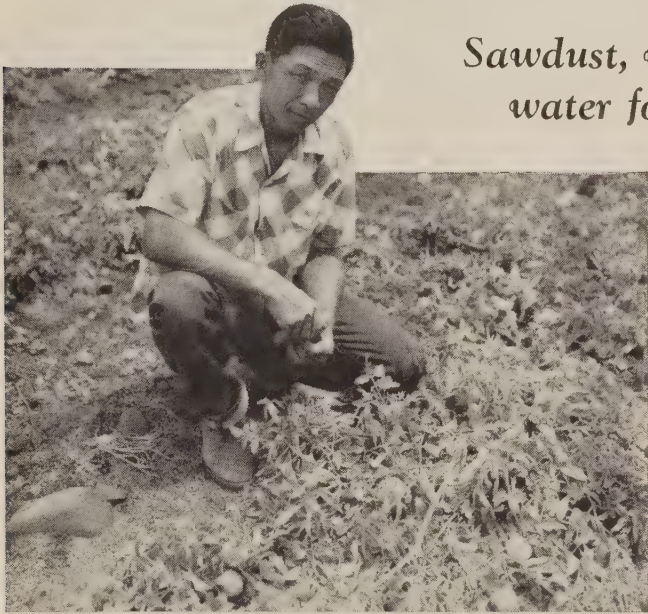
FRONT COVER.—Well surrounded by a cover crop strip of wheat, vetch and voluntary rye, is young Sidney Ripple, son of a conservation-minded Maryland tobacco farmer. John Ripple is in the Anne Arundel County Soil Conservation District. The photograph was made by Gordon Smith just about a year ago.

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Wood-Waste Mulches in Hawaii

Sawdust, woodchips, and bagasse cut the cost of water for growers of flowers and vegetables

By ROBERT E. SWANSON



Shinichi Araki succeeds with mulching.

A FEW years ago it would have been a hard job to convince a farmer in the Territory of Hawaii that he ought to use organic mulches on his cropland. He had never thought much about sawdust, wood chips, and bagasse as farming materials.

The story is changing now. Thanks to the efforts of a few pioneering farmers, encouraged by Hawaii's soil conservation districts and the Soil Conservation Service, more and more Islanders are seeing the value of mulches in their soil and water conservation program.

One of our pioneers in the use of wood wastes is Takeshi Shibuya, a cooperator with the Olinda-Kula Soil Conservation District on the Island of Maui. This young farmer also is a florist in Wailuku, the largest town on the island. He depends entirely upon the products of his own farm to keep his shop well supplied with flowers. With the help of M. H. Arnold, Jr., SCS technician, he made the change-over to "protective cover" farming about a year ago.

Shibuya reports that the use of sawdust and wood chips has brought him savings up to 70 percent in the volume of water used, and similar reductions in time and labor required for irri-



Takeshi Shibuya displays a basket of gladiolas grown under a system of mulch farming.

gation and weeding. Moreover, he finds that mulching helps him to grow carnations, gladioli and other flowers of superior fragrance and beauty—an important item with florists everywhere and particularly in flower-loving Hawaii.

Shibuya's middle name is not "Persistence," but maybe it should be.

"I think enough of mulching as a good prac-

Note.—The author is soil conservationist, Soil Conservation Service, Wahiawa, Oahu, T. H.

tice," he says, "that I go every afternoon with my station wagon to get sawdust and other waste materials at a local planing mill. I fill a dozen or so pineapple sacks. Then, after work, I drive to the farm—a distance of 20 miles from Wailuku—and unload the sacks. If it isn't too dark, I spread some of the material on my flower beds. Next morning, bright and early, I drive to the farm again, finish spreading the mulch, and harvest flowers for the shop."

In the past year he has covered 7 acres with a 3-inch layer of wood wastes. That's a mighty big task when you consider that every load was hauled 20 miles in a station wagon. Recently he purchased another 7-acre farm, which he plans to anchor down with mulch as soon as possible.

An elderly couple who help him with his irrigation and weeding are watching these developments with some anxiety. "They aren't wholly in favor of my mulching project," he remarks. "They're afraid it will put them out of a job!"



Yukio Fukunaga, and calla lilies mulched with sawdust.

Shibuyu expected the wood wastes to sap his soil of nitrogen, and was prepared to apply extra amounts of nitrogenous fertilizers. Thus far, however, that has not been necessary. Perhaps the reason is that he does heavy fertilization as a routine part of his farming operations.

To show his neighbors and himself the value of mulching vegetable crops, Shibuyu planted cabbages and onions between his flower rows. The cabbages, crisp and succulent as lettuce, reached an enormous size. A few measured 18 inches in diameter. The onions grew lush and green.

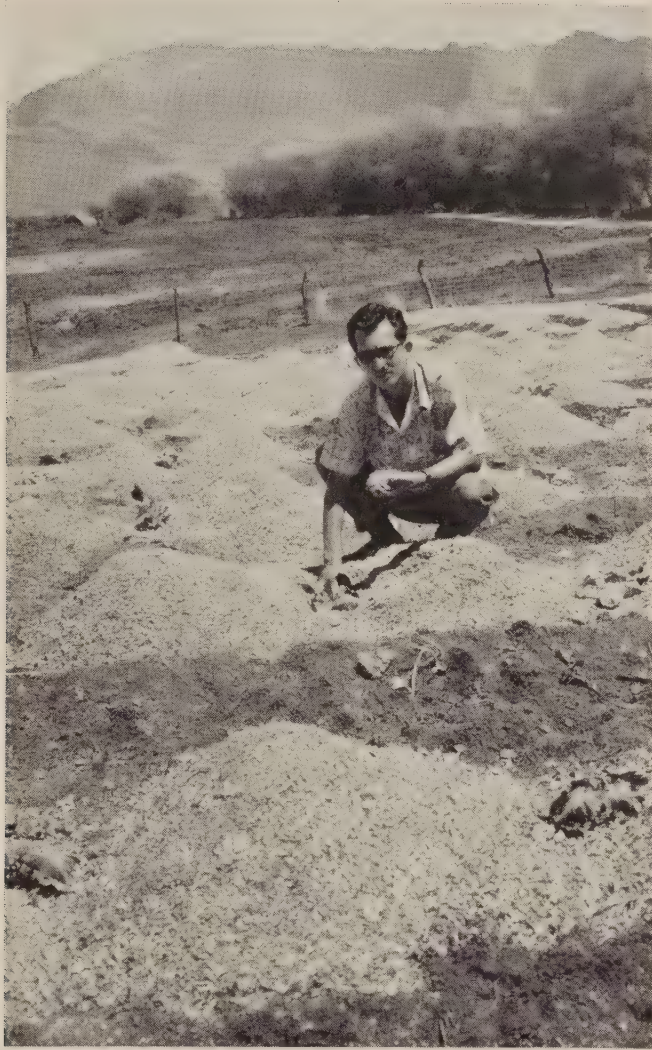
Mrs. Vera Weir, another Olinda-Kula District farmer, uses bagasse on strawberries, roses, and vegetables to cut her irrigation costs by one-half. Bagasse is sugar cane with the juices squeezed out. Mrs. Weir, an ex-Army nurse who went into farming 2 years ago, is convinced that mulching is an excellent practice. "Weed control is easier," she says, "yields are higher, and the money saved on my water bill more than covers the cost of buying bagasse and hauling it from the sugar mill. Besides these advantages, soil washing on my farm is a thing of the past."

A third district farmer, Yukio Fukunaga, finds that "A sawdust mulch on my calla lilies lengthens their blooming period by 2 months. My crop used to be finished by April or May. Now I can harvest clear into July."

George Raymond, chairman of the Olinda-Kula Soil Conservation District, sees in mulching a great conservation practice for Maui and the other islands of Hawaii. He thinks added impetus would be given to its use in Olinda-Kula if farmers were to band together to buy a wood-chipping machine. The district abounds in such weedy trees as black wattle, considered a pest by most farmers. Run through a chipper, these trees would make excellent mulching material, according to Raymond and Technician Arnold.

In the West Oahu Soil Conservation District, Shinichi Araki has pioneered in using mulch on vegetable land. Araki is a district director. He began using sawdust early in 1952, and was so encouraged by the results that he is extending the practice to all his fields.

The Araki farm is located in the hot, arid Waianae Valley of Oahu, where irrigation water runs 24 cents per thousand gallons. That's ex-



Richard Yonezaki of SCS examines piles of wood wastes to be spread as mulch on the Araki farm.

pensive water. Sawdust mulch on an acre of tomatoes saved Araki \$250 in water charges. Small wonder that this farmer is one of Oahu's top sawdust boosters!

Araki also noted that his tomato production showed a substantial increase, but he is cautious about giving all the credit to the mulch. "At the time I started using sawdust," he explains, "I also changed from a 10-12-10 to a 16-16-16 fertilizer. So, I'm not certain what my yields would have been without the mulch. I do know, however, that my tomatoes were of much better quality and were not damaged by insects."

His latest mulching venture involves a large field of broccoli. He uses a heavy application of poultry manure, followed by a 3-inch layer of sawdust. He obtains his sawdust from a mill in Honolulu.

"Quail Roost Farm"

By BARRINGTON KING

ANY farmer can have quail on his farm, says Rice Gwynn, Jr., of Brunswick County, N. C.

Gwynn bought the first tract in his 5,000-acre "Quail Roost Farm" about 10 years ago. Since then a conservation plan worked out with the Lower Cape Fear Soil Conservation District not only has brought added income but also an increased quail population.

"Any farmer can fit good quail conditions into his farm layout," says this farmer. "My farm isn't run solely for quail, but the quail are there as a result of the kind of information given me by regional biologist Verne Davison and others of the Soil Conservation Service.

"The farm is strictly business, run to pay dividends. Its *gross income the year before I started conservation farming was \$10,000. That was increased to \$135,000 in 1952.*"

Good quail conditions are provided along the sides of the large fields by rows of bicolor lespedeza, the seed of which made the foundation food for quail in large numbers. This perennial bushy lespedeza costs very little to plant and maintain."

The seed of bicolor do not sprout or rot easily. They stick fairly well to the plants and so can be eaten even when the ground is covered with snow.

At other times, the birds simply scratch for the seed among the fallen leaves. Gwynn has found the seed can be depended on as quail food from November through April. By that time, early berries are beginning to mature.

Actually, according to recent research by Dr. Arnold Haugen of the Alabama Experiment Station, bicolor seed are eaten by quail every month in the year. This high carry-over of bicolor seed has been confirmed by farmers cooperating with local soil conservation districts in many parts of the Southeast.

Note.—The author is regional information chief, Soil Conservation Service, Upper Darby, Pa.

DISTRICT PROFILE



DICK BUEHLER
of
IDAHO

WHEN E. R. (Dick) Buehler was first appointed supervisor for the Portneuf Soil Conservation District back in '45 they had to chase him all over the county to get him to take the job. Since then Buehler has been doing the chasing—for the district and soil conservation. He is in his second term as president of the Idaho State Association of Soil Conservation Districts.

Buehler, bushy browed, with wrinkles running in every direction from his deep set eyes, is a native son of the Gem State. His parents came from Berne, Switzerland, and introduced Dick to this world at the little Mormon settlement of Paris, Idaho, close to the shores of Bear Lake. Pioneering on the land has been Buehler's life ever since.

When you talk with Buehler about soil conservation you feel that he does not consider the subject one of passing interest, or his jobs as supervisor of the Portneuf Soil Conservation District and state president of the district association mere civic duty. He is strongly convinced of the urgency of action, for district organization, farmer education and technical help. He will tell you of the national conventions at Oklahoma City and Cleveland, "I have never seen men work so hard," he says.

Buehler did not start out as a farmer. He built his muscles in rock mining, digging for lead, copper and silver. After a while he settled down to a homestead in Oneida County near the Idaho-Utah border. Here he raised Turkey red wheat, dragging the sacked grain 20 miles to town on a sled. "That was a tough life," he remembers. Seven years was enough for Buehler to prove up the homestead and decide he wanted to live elsewhere. He sold the land to his brother and settled on the fertile Snake River bottom lands near Blackfoot. Here irrigation assured good crops and potatoes were making Idaho famous. In 1930 he bought his farm near Pocatello.

Dick Buehler is a hard worker. The many trips to the state capitol and to the "national's" are only a few of the places he has been. He says those that count are to small communities and grange halls, where petitions and hearings for district organization bring out the local farmers. Nor will he let the state legislators forget the vital need for better conservation laws. Letters are continually passing between his farm and the state capitol. Things are happening and Buehler in his quiet way is the man behind many of them.

He has promoted tours, field days, demonstrations. One was just for the business men of Pocatello. "We supervisors felt that it was important for merchants and professional men to find out what farmers were doing to conserve their land," he says.

Buehler believes in publicity. His district published the booklet "10 Keys to Soil and Water Conservation," and financed it by selling advertising. Last year he got the state association to publish a quarterly magazine for all 33 districts in Idaho.

Some of Buehler's early jobs as a civic leader well qualify him for the work he is doing today. He helped organize the local Farm Bureau, forming a 100 member \$100 club to finance the venture. He served on the Eastern Idaho State Fair Board 6 years and was its chairman in 1951. He is active in the Dairy Association, is a member of the Water Users Committee, the Beet Growers Association, and the Potato Growers.

His wife has shared in all these activities. Many times she has been the one to get speakers or films and carry the burden of organizing programs. She was first vice president of the American War Mothers for Idaho, president of the American Legion Auxiliary and vice president of the State Soil Conservation District Auxiliary (the first in the United States).

The Buehlers' three boys were in the war. Dick and Russ were in the navy. Jack, an air corps flight engineer, was lost in a tragic flight over Yugoslavia.

How can an irrigation farmer, who spends his summer chasing little streams of water across potato, grain and sugar beet fields, find time to be a public servant? Buehler is one of those industrious men who can always find time

to help a good cause. His farm covers 310 acres, part on the Fort Hall Indian Reservation. "It has taken me 7 years to land level and fertilize the whole place," he says. "One reason I keep my herd of 45 Holsteins is for the manure. I use a system of crop rotation to help out."

Characteristically, Buehler doesn't claim any crop records. He

would rather point to other benefits of soil conservation. Land leveling, he claims, has been the most important accomplishment in his area. The results have brought an enthusiastic statement by the irrigation engineer for the Indian lands that more water has been left in the reservoir at the end of the season than ever before—a direct measure of progress. —ROBERT B. BRANSTEAD.

Dick Buehler
irrigating sugar beets.



Wildlife as a Managed Crop

*The Chief of the Soil Conservation Service speaks on behalf of
“a coordinated, total resource-use program.”*

By ROBERT M. SALTER

WILDLIFE is a product of the soil, trees, grass and grain and is an important agricultural crop. Since the same land that produces our food supports the major part of our wildlife, the technologies we use in management of our farm and ranch lands inevitably have a major bearing upon the size and quality of this wildlife crop.

We are continually faced with the problem of fitting wildlife practices in with the management of the land for food production. Solution of the problem calls for practical understanding and cooperation by all concerned, on or off the land—farmers and sportsmen, wildlife conservationists and soil conservationists.

As I see it, the job we are up against is for all of us together to do everything we can to foster appreciation and production of wildlife by all those who manage our lands, at the same time being realistic in recognizing the practical economic facts involved in primary agricultural production. This can be done, I sincerely believe, without halting progress in drainage, flood prevention, or other land management measures essential for food and fiber production. And it can be done without wantonly sacrificing our game, furbearers, wild fowl and fish life. There is a sound middle ground.

Because so great a percentage of our land has been fenced and plowed, the farms and ranches of today comprise the country's principal wildlife habitat. By the same token, *the farmer is our principal game manager*. Moreover, most of the water that supplies our lakes and streams, as well as a great deal of that which empties into the sea, drains from or across these same farm and ranch lands.

Farmers and ranchers, as primary suppliers, will continue to have a great deal to say about our hunting and fishing. Their understanding of the importance of wildlife in our land economy is essential.

A basic tenet of the Service program long has been that the conservation of soil, water, forest, grass, cultivated crops, and wildlife must be tied together and scientifically coordinated on the basis of land capability and need. Encouragement of beneficial wildlife is an integral part of our soil conservation objectives.

Let's review some of the common soil and water conservation practices that are beneficial to wildlife by providing food and cover and general improvement of habitat. One of them is strip cropping, in which strips of tilled crops are alternated with strips of grass and legume crops. No less than 7½ million acres already have been converted to this pattern of farming in soil conservation districts.

Another practice is use of cover crops, with some 20 million acres planted to a wide variety of legumes and other plants. Stubble mulching is in use on upwards of 50 million acres in districts.

Of course, there has been the substantial development of farmland areas specifically for wildlife, through developments such as field borders, planting odd areas, and protecting and improving marshland areas more valuable for wildlife than for agricultural use. As was the case with the other practices in the coordinated conservation program, more wildlife area improvement was accomplished in districts last year than in any year before, bringing to 1¼ million acres the total area thus treated.

Also important is the building of farm and ranch ponds, most of them primarily to provide

Note.—This article is based on an address delivered at the Eighteenth North American Wildlife Conference, Washington, D. C., March 10, 1953.



Good pheasant shooting and good farming go together.

water for livestock, supplemental irrigation or other farm needs, but with attention given by our technicians to fish production and wildlife use. The Soil Conservation Service alone has given technical assistance in the building of more than a quarter of a million ponds in the last 15 years. Many of them have created duck habitats where none existed before.

On many farms water is being impounded on low, wet lands that previously were of little use either for wildlife or farm crops. A couple of hundred such impoundments in the Allegany Soil Conservation District in New York have proved their worth in attracting and sheltering waterfowl. One of them, a 6-acre marsh, produced three broods of mallards the first year and sheltered large flocks of migrating ducks and geese in the fall, in addition to attracting deer, raccoon and smaller wildlife.

A properly coordinated land-use program anywhere must of necessity take into account many factors besides merely the development

and management of plow land and pasture. Thus, the Service considers the conservation and improvement of the Nation's woodlands to be an integral part of its coordinated program. Here, too, we approach the job, not as a primary forestry agency, but as a technical corps experienced in evaluating the capabilities of the land and in assessing the resources and requirements of the farmer.

Part of our job is to encourage the landowner's appreciation of his woodlands in his over-all farm operation, and to help guide him in doing what is needed to protect, maintain and utilize the woodland correctly. That is, not for wood products alone, but also for watershed protection, erosion control and wildlife habitat.

Our vast acreages of native grasslands, or range land, likewise are of such major importance in our agricultural economy that they require a proportionate share of our attention in developing the Nation's coordinated soil and

(Continued on page 257)

Boy Scouts Work on the Land

A rapidly expanding program carries conservation knowledge to future community leaders.

By TED S. PETTIT



THE Boy Scouts of America cover a wide range in their program of resource-use education. This program is designed to develop certain desirable attitudes in more than two and a quarter million members of Scouting; it also aims at achieving better land use practices through specific work-on-the-land projects. Potentially, this may be the biggest conservation education program ever undertaken by a single organization, and a potent force in the total American resource conservation effort.

Boys may enter Scouting as Cubs at age 8, and continue as Boy Scouts (ages 11-13) and Explorers (ages 14 and up). Programs are geared to the age level and include requirements which give opportunity for the boys to advance in rank. Elements of conservation have been integrated in these advancement requirements.

For example, there are projects for Cub Scouts in nature, gardening and conservation intended to show these younger boys their dependence on natural resources and how they may help in using them wisely.

Boy Scouts, too, work on certain conservation projects as part of their advancement requirements from Tenderfoot through First Class. In addition, Scouts may work on various merit badges, among them those for soil and water conservation, forestry, and wildlife management. As of January 1, every Scout is required to earn one of these badges to advance to the highest rank of Eagle Scout.

Note.—The author is assistant to director, editorial service, Boy Scouts of America, New York, N. Y.

Explorers, for their part, may work on merit badges or elect to work on a program of their own selection, which frequently includes projects in various fields of conservation.

These requirements are an important, but by no means the most important, aspect of the conservation program. What counts most is the attitudes that result from the work involved.

Many methods are used to get Scout leaders to provide the necessary opportunities. One of these methods is the Three Year Program, now in its second year, the slogan of which is, "Forward on Liberty's Team." In this national program, each of the 85,000 Cub packs, Scout troops and Explorer units over the country is encouraged to set for itself nine goals each year. One goal is the completion of at least one conservation project.

Scouting has long been known for its "good turn." This conservation project goal is classed as a community service project. Scout units are encouraged to work through local professional conservation agencies or technicians to find a project in their local community that meets a need. Then, with proper guidance, they plan the activity and carry it out.

Much of the success of the conservation program is due to the excellent cooperation of soil conservation districts. By acting as merit badge counselors, Cub leaders, Scoutmasters and informal consultants, supervisors and technicians are doing much to further the Boy Scout resource conservation education program.

During 1952 the soil and water conservation merit badge manual was published. The manuscript was prepared by Bernhard A. Roth, of the Soil Conservation Service with guidance from Bert D. Robinson, also of SCS and National Merit Badge Counselor for soil and water conservation.

The manual explains Boy Scout conservation policies, and the individual requirements which lay out work for boys in camp or at home, or for Scout Troops seeking community activities.

Some 49 percent of all Scouts live on farms or in rural communities. Thus, what is learned in the Scout conservation program may be directly applied to the land and assist to some degree in improving land use practices.

The Boy Scouts know that they must have trained leadership, both professional and volunteer. This training must be not only in conservation ideals but also in methods of program planning and execution.

To that end, training courses are held for adult leaders each year. Instruction is provided by technicians of the Soil Conservation Service. During 1953, courses will be held in Osage Beach, Mo., and in Mendham, N. J.

One of our major objectives is to bring under conservation planning all of the one-third million acres owned by the Scouts as campsites.

Campsites, like farms and ranches, are subject to erosion, grass or forest fires and other catastrophes. Putting conservation plans into effect on these campsites brings a very real economic benefit. On one hand, the money spent annually as a result of washing, streambank

erosion, gullyng or fires can be put to better use. On the other hand, cash income for camp forests, campsite pastures or grazing permits can be used to improve facilities and make room for more boys. Finally, there is the value of these campsites as conservation demonstration areas, where not only Scouts learn good land use practices, but also where leaders, parents and neighboring farmers or ranchers may see on-the-ground examples of recommended practices.

There are approximately 600 individual camps scattered over this country, and 800 demonstration areas. It's impossible to estimate how many more acres are represented by our three million Scouts and leaders. It's true that many of these come from metropolitan areas and own no land. But what they see on a well-managed campsite is sure to affect their thinking and influence their attitude. The direct application of land use practices on the land owned by parents and leaders would go a long way toward bringing under conservation planning every acre of land in America.

By the first of this year nearly 50 of the 541 Boy Scout Councils had signed as cooperators of

Measuring precipitation by a home-made rain gauge.



soil conservation districts and had received conservation plans for their campsites. The acreage involved makes up more than half of the campsite total.

More campsites must be brought under conservation planning for the number of persons directly concerned is still less than 10 percent of the total Scout population. The task of bringing into the program the other 491 Scout Councils is being tackled systematically.

The Scout executive (a professional, paid worker who is the executive officer of the Scout Council) and the Council executive board (a group of key community leaders, volunteers) enter the campsite as a cooperator of the district and apply for help. Many times it happens that the executive and board members do not even know of the existence of the district and the benefits which it offers. Here is where there is a selling job to be done.

When the Council receives its camp conservation plan, the executive, the key volunteers, and the soil conservation district technician sit down and discuss it. Some of the practices call for hired labor and equipment. They are obviously beyond the capabilities of boys or even adults not versed in the techniques involved.

In this meeting such outside work is outlined and, in addition the work that is within the capacities of boys—such things as planting grasses, legumes, trees, shrubs and vines; thinning and pruning woodlots; helping to keep the fish populations in the pond in balance, and similar activities.

Then a program is developed so that both sets of projects will be completed.

Typical is the description of a recent conservation project, which is reprinted from *American Forests Magazine* for April 1953:

"Something new was added to Boy Scout camping when the Coastal Carolina Scout Council, with headquarters in Charleston, S. C., launched its conservation program recently. Through a combination of the features of a farmers' field day and a county fair, Scouts and leaders not only learned at first hand the need for the intelligent management of forest resources, but they actually carried out conservation practices on the land.

"The idea for the unique conservation camp project started when the Council Executive



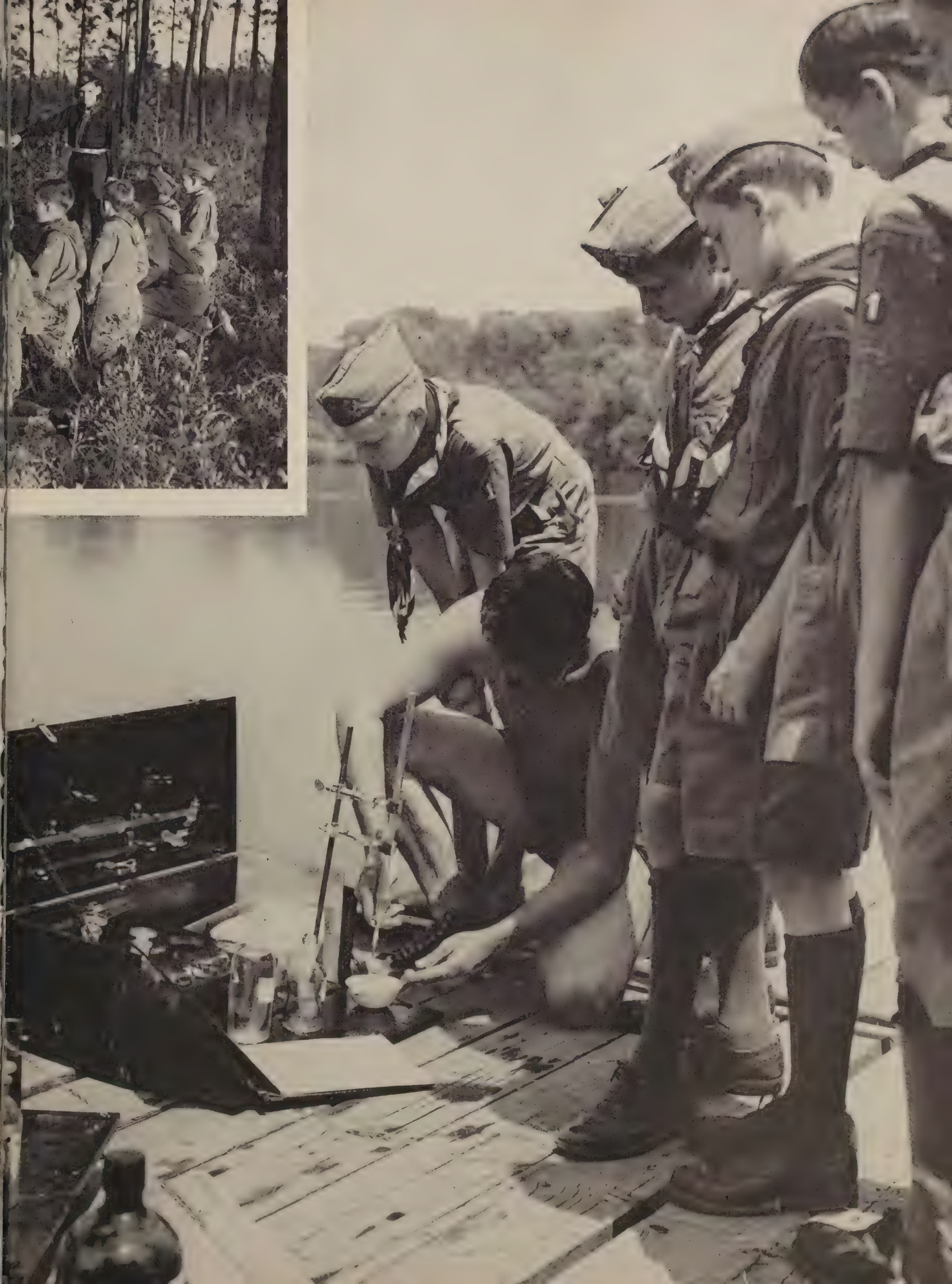
With shovels and other implements, Scouts learn how to construct barriers helpful in checking flames in undergrowth.

Chemical tests of fishing waters are made by a technician of the New Jersey Fish and Game Commission.

Board approved the conservation plan for its 162-acre campsite and thus became a cooperator of the Charleston Soil Conservation District.

"The campsite, formerly part of a large plantation, now is largely covered with trees. Although part of the area is suited for cultivated crops or pasture, obviously such activities would conflict with the primary use of the land—Scout camping. But growing trees does fit in with camping, so the largest part of the conservation plan calls for the management of the forest to produce some cash income for camp maintenance; lumber for new buildings; wood for fuel and poles for campcraft projects.

"A 2½-acre plot is kept in pasture and a 4-acre plot is planted in various truck crops by neighboring farmers, under good land-use practices. These small areas produce a small cash return, but their primary purpose is for conservation education. About 40 percent of the Scouts in the Council are farm boys, and these areas with the woodlot provide demonstration laboratories in which Scouts learn practices which may be applied on their own farms.



"During the week before the conservation camporee (and for the uninitiated in Scout terminology, a camporee is a special weekend or overnight camp) six demonstration and activity areas were set up around the campsite.

"These areas were: (1) soil profiles for instruction in soil types and land capability; (2) pine seedling planting; (3) wildlife food shrub planting; (4) woodlot management; (5) pasture improvement; (6) woods fire prevention and control.

"Since setting up these demonstration areas required considerable time and machinery, outside help was required. Technicians of the Soil Conservation Service and South Carolina Commission of Forestry, farmer-cooperators of the soil conservation district, and a farm equipment

dealer supplied men and equipment for such jobs as plowing seedbeds, removing brush, leveling land and plowing the pasture, marking trees for improvement cuttings and building fire breaks.

"But so that Scouts would not miss the thrill of seeing the equipment in action, finishing touches were left for the last minute and some of the heavy work continued while Scouts watched and worked.

"The program itself started on a Friday evening in the camp dining hall. Soil and forest technicians briefly outlined the need for the conservation of soil, water, grass, forest and wildlife resources and showed dramatic movies to illustrate their points.

"The work-on-the-land part of the program



M. W. Sullivan, SCS soil scientist at Kingtree, S. C., tells some Scouts about soil profile.



Scouts observe fish seining in connection with lake survey by New Jersey Fish and Game Division.

started at 8:30 the next day as groups of 50 Scouts and leaders arrived at each of the 6 activity areas. At the end of each hour, each group moved to the next station, so that after 6 hours each boy had taken part in each of the 6 activities. Of course, they took time out for lunch, and that was a beef stew supplied by the Charleston Chamber of Commerce.

"At 3:30 the entire group of more than 300 was supposed to gather at one point to watch a selected and trained group of older Scouts fight and control a small (controlled and carefully planned) woods fire. But a heavy rain forced postponement of that session till a later date.

"Some 50,000 slash pine seedlings were planted in the course of the day by 6 groups of 50 Scouts each.

"As each group arrived at the planting site, instruction was given in the technique of hand planting. Then Scouts were organized into teams of three. They were lined up across the field and shown lines along which they were to plant, each line being marked with poles. One boy of the team carried the seedlings, the second carried the dibble and made the holes, and the third dropped the seedlings in the hole and tamped the earth around the roots.

"After planting a dozen trees, the boys within a team rotated jobs so that none would get tired and all would have experience in each phase of the project. (Scout leaders and foresters must have been 'living right' that week, for scarcely had the planting ended, when a heavy rain came down and some 2.09 inches fell in the next twenty-four hours. Those trees should have a high survival rate!)

"Scouts were told that these seedlings should produce a cash crop in 12 to 15 years when the first one or two thinnings could be sold for pulp

or fence posts. These, and the next thinnings would reduce the plantation to a stand which would be the maximum that the land would support.

"At the woodland management station, Scouts saw a quarter-acre marked for an improvement cutting. Each tree was labeled telling why it should be cut or why it should be left to put on more growth.

"In this area, Scouts were shown how foresters determine the rate of growth and how they determine which trees to cut. Each Scout had the opportunity to use an increment borer and to estimate growth rate and volume. In-



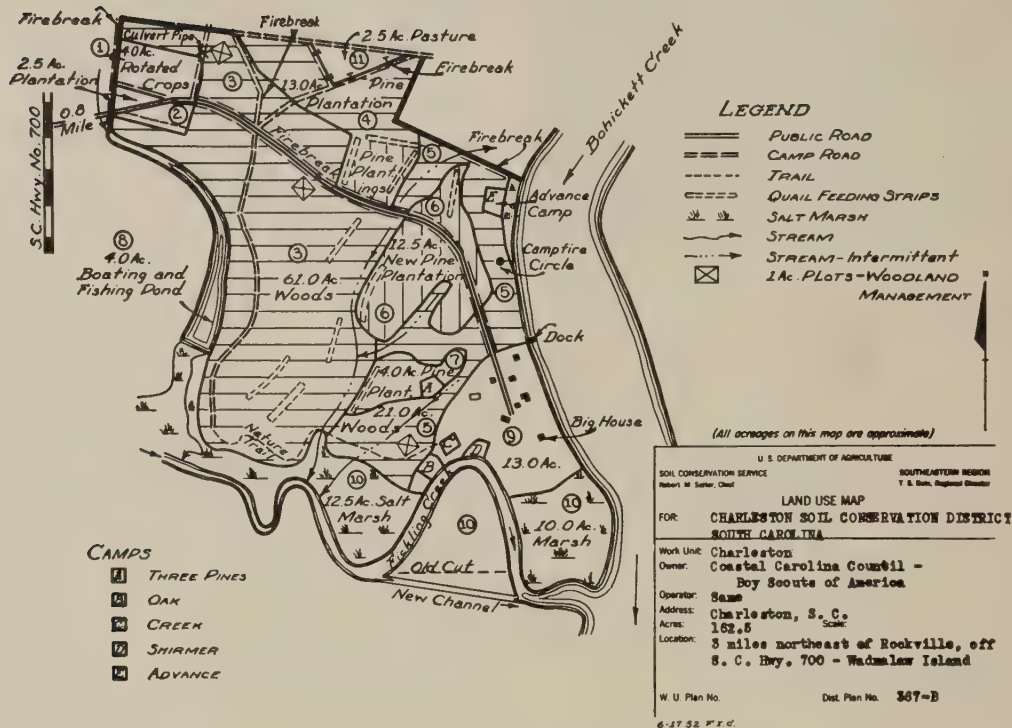
Giving a little pine a chance to be a big pine.

struction was given in measuring diameter, height and number of logs. Then Scouts measured the d.b.h. and determined volume of five trees and checked their results against a master card.

"One of the more interesting aspects of the woodlot management demonstration was that phase concerned with what to do about undesirable hardwoods that should be removed. These weed trees were growing in both the new pine plantation and the managed pine woods.

"It was decided that these trees might well be poisoned and left to season on the stump.

CAMP HO-NON-WAH
BOY SCOUTS OF AMERICA



Thus, Scouts had a long-lasting supply of fuel for cooking fires, and logs and poles for axe practice and campcraft use.

"Since too many people in that section of the south minimize in their own minds the damage caused by woods fires, Scouts were shown what happens when a pine woods is burned over. They counted the young seedlings growing in a 20-foot square, and this called for a hands-and-knees coverage of the area and a pawing aside of duff to find the tiny seedlings. The particular area had been burned over in years past, with the result that the stand consisted only of 20- to 30-year-old pines. This was contrasted with another stand of mixed aged pines—from seedling to 5-year-old trees to 30-year-olds. This was a dramatic example of how fire does interfere with the health of the forest as far as sustained yield crops is concerned.

"The conservation plan for the campsite called for the construction of new fire breaks to protect the old as well as the new plantings, and these were built with power equipment (tractor and plow) sent in by the State Forestry Commission. This same equipment was used to plow a double line around a circle with a hundred foot

diameter—that area to be used for the demonstration of woods-fire control when the woods finally dry out after the torrential downpour on the day of the camporee.

"This conservation education camp was a unique and interesting experience for the boys who took part. But more interesting perhaps, was the cooperation of the community as a whole that made it possible. And that spirit of cooperation speaks well for the future of the conservation movement in America.

"First, it should be remembered that nothing forced more than 300 Scouts and leaders to take part. They did so entirely of their own interest, and the fact that each received an attractive neckerchief donated by the soil conservation district was an added attraction, not the motivating factor in their participation.

"But the project could not have been held were it not for the guidance and help of the district, its technicians, supervisors and cooperators; and the State Forestry Commission with its help in personnel, equipment and a very strong interest in forest-management education.

"In addition, the Farm Bureau, the county agent, the Chamber of Commerce, neighboring

farmers, a fertilizer dealer, a farm equipment dealer, and the Charleston newspapers all did their part to make the project a success.

"Since representatives of other Scout Councils, the regional and national offices of the Scouts, and the local Girl Scout Council all attended as observers, there is little doubt but that the Charleston project served also as a pilot project that will spread widely over the country. For like the farmers' field days or face-lifting projects that have spread widely, this method dramatizes conservation while it teaches basic principles but, best of all, it provides a chance for Scouts to learn by doing.

"This project has permanent value in that Scouts may return to the camp weekend after weekend and continue the projects they started at the Camporee."

Among the other campsite conservation plans that have been developed, and which show the scope of land-use practices involved are:

Clarion County, Pa.—Protect 138 acres of woodland from fire and grazing; timber harvest and improvement cuttings.

Springfield, Mo.—Protect woodland from fire; improvement cuttings and timber harvest; stock stream with bass fingerlings.

Huntington, W. Va.—218 acres. Plant pine and spruce seedlings; plant shrub borders; woodlot management; construct farm ponds; manage ponds for bass—bluegill production; plant grass to reduce erosion.

Grinnell, Iowa—128 acres. Pond constructions and management; fence new management; tree planting.

Middletown, Ohio—175 acres woodlot management. Soil improvement before tree planting.

Huntsville, Tex.—2,500 acres. Pond management; marsh management; new pond construction, timber harvest and management; wildlife plantings; road construction.

Pecos, Tex.—2,800 acres. Range improvement. Bring grazing animals into line with annual forage growth. Wildlife plantings, pond construction and management.

It is obvious from this summary that Scout campsites typify the land use problems of the area. It seems clear that campsite conservation demonstrations can serve a real function in education, whether for city boys or those who

may more directly apply what they learn.

In summary, the Boy Scouts of America has these objectives for its resource conservation education program: To provide the means and opportunities for boys to learn desirable attitudes and concepts regarding the proper use of the land so that when they become adults, they will be conservation-minded farmers and ranchers, intelligent voters, or perhaps conservation technicians. With the continued valuable help of the soil conservation districts, and the other needed individuals and agencies, these purposes may be achieved.

WILDLIFE AS A MANAGED CROP

(Continued from page 249)

water conservation program. Here, of course, the primary objective is the improvement and maintenance of forage for livestock so essential to supplying us with meat, wool and leather. This same land, however, must support an important share of our wildlife. The job is to see to it that the needs of both domestic livestock and wildlife are met and soil moisture conservation problems solved.

Experience has shown that this can be done effectively through range improvement and management practices that result in more grass for better feed and ground cover, and development of adequate water supplies. Taking unsuitable lands out of cultivation and seeding them to grass, or planting them to trees, and discouraging the cultivation of grass and forest land not suitable for cropping, also has helped immeasurably to improve the conditions for the perpetuation of wildlife.

The wildlife benefits accruing from tree planting and farm woodland management are well known. The forestry part of soil conservation district programs to date has included close to a million acres of tree planting, between 11,000 and 12,000 miles of field windbreaks, and about 19 million acres of conservation woodland management. Meanwhile, range and pasture improvement, which improves food, cover and water for wildlife, has been applied on 78 million acres in districts; and range and pasture seeding has totaled 12¼ million acres.

Watershed development and upstream flood

prevention work is a growing and important field of conservation of great interest to all who are concerned with improvement of our renewable natural resources. Watershed treatment includes, in addition to conservation farming, range management and forestry measures, many works of improvement, such as small floodwater retention dams and reservoirs, diversions, and channel stabilizing structures.

The benefits of watershed improvement to fish and wildlife are many. Flood-prevention treatment results in improved habitat for wildlife on watershed lands, through increase in grass and legumes, shrubs and trees. There are benefits to waterfowl, fish and furbearers through establishment of ponds, small dams, and other water-holding and water-detention structures, stabilization of stream flow, and reduced sedimentation of streams, reservoirs and estuaries.

Drainage of wet lands is a conservation practice about which there has been some difference of opinion between soil conservationists and wildlife conservationists. There are approximately 100 million acres of wet lands including marshes, swamps and small water areas in the United States at present. Much of this acreage is intermingled with drained land on thousands of farms scattered throughout the country. Estimates made from surveys by the Soil Conservation Service indicate that not more than one-fifth of the acreage of wet lands is suitable for cropland under present conditions. The other four-fifths of the acreage is not suitable for cropland or for pasture either because the soil is unproductive or it is uneconomic to drain the land. We know that much of this latter area can be improved for waterfowl and furbearers; and it is our policy to encourage such development by the owners.

Most of the drainage that has been done by farmers and ranchers with technical assistance from the Soil Conservation Service has been accomplished by tiling and open ditches on cropland and pasture. Less than 1 percent of the 71½ million acres total drainage with which the Soil Conservation Service has assisted has affected swamps, marshes, or open water areas of any conceivable value to waterfowl.

Wildlife conservationists have been especially concerned about drainage in Gulf and Coastal Plains states. I believe that this problem can be

resolved. The national needs for food and fiber at this time do not demand bringing much of this land into production. Under current price relationships, it is uneconomical to do so.

Whether extensive reclamation work in this area becomes necessary will, in my opinion, depend to a large extent on how fast we get on with the conservation job on land now in production. The faster we move on the job of improving and protecting the land now in cultivation in all parts of the country, the longer we can leave these lands for wildlife use. I consider some of this land as a reservoir of future potentials that can be put to crop use if our national food situation demands it.

There is, of course, some land to be found on farms now being operated where drainage is necessary to improved economic operations. Such an instance in Maryland was the subject of that State's winner in last year's soil conservation district speaking contest. His farm is in the swampy area of southern Maryland. Fields once farmed have turned to swamp because of silt deposits resulting from top soil eroding from the higher land in the watershed. His richer deposits of wealth lie locked away in the swamps. He needs to get his land drained for economic production. I'm sure that wildlife conservationists understand his needs and want to see his drainage problem worked out. I believe it can be worked out without sacrificing wildlife.

Wildlife conservationists have also been concerned about pot-hole drainage in the Dakotas and Minnesota. Here, without doubt, there is a conflict of interest between the farmer and wildlife conservationists.

This problem has come about because of progress in modern agriculture. Years ago the pot-holes were difficult and costly to drain. Working around them with horse-drawn machinery wasn't too bothersome. Now, machines have made it relatively easy to drain the pot-holes at relatively low cost. With the mechanization of agriculture, the pot-holes have become a bigger nuisance to the farmer. Farmers get stuck with tractors where they didn't with horses. Consequently, there has been recent increased interest in pot-hole drainage.

I believe there is a need for helping farmers to recognize fully the wildlife values of pot-holes. The farmers who own the land are the

ones who need to be convinced. Decisions to drain are private decisions. We believe that if farmers have full information on the wildlife values of pot-holes, many would be willing to make the economic sacrifice and put up with the inconvenience necessary to leave them. Getting this full story to farmers, I believe, is a challenge to wildlife conservationists.

Certainly, there is no conflict in thinking when it comes to such operations as tile and other field drainage for wet crop or pasture lands or rehabilitation of old ditch drainage systems. And when the landowner wishes to explore the possibilities of draining marshes, swamps, or areas of open water, Soil Conservation Service technicians are guided by careful use capability surveys that indicate soils which might be more useful for wildlife habitat than for agricultural purposes.

It is also Service policy, as a further safeguard to all interests concerned, to draw upon, in addition to its own engineering and other technical facilities, the advice of the Fish and Wildlife Service and the State wildlife agencies before detailed plans are prepared for drainage of swamps, marshes, and areas of open water.

It is only when wildlife conservationists and soil conservationists both work with farmers that it is possible to arrive at adequate information on the effect of any proposed drainage on both the land and wildlife and to bring to the attention of soil conservation districts and individual farmers the facts necessary to insure consideration of wildlife in the proper use and treatment of the land.

That is the Service's honest aim. In working toward it, we will go as far as we can to discourage drainage of land that is better suited to wildlife, particularly waterfowl, than it is to the production of crops. Sometimes, in fact, we have occasion to go even further, and help put water back on land instead of draining it off, as I have already mentioned.

While the Soil Conservation Service is trying to do all it can to protect and improve wildlife on the farms and ranches of the United States, technical assistance in conservation cannot fully dissolve the conflict of interest between farmers and wildlife conservationists. In fact, I doubt whether the conflict can be totally resolved without a more intensive effort to de-

velop greater farmer appreciation of wildlife, and without methods for compensating farmers for hunting and fishing privileges.

Many farmers tell us that one of the satisfying results of practicing soil and water conservation farming is the restoration of even better game than originally inhabited their farms. It is something they can enjoy and share with others.

Direct returns from their increased wildlife have been realized and welcomed by many conservation farmers over the country. These range from fish and game for the table to revenue from furs, fish, and hunting and fishing leases.

Soil conservation districts constitute an ideal focal point for bringing to bear the cooperative efforts from many sources that are necessary to meeting the problem of increasing production of beneficial wildlife on American farm lands. These districts have obtained cooperation in these efforts from the Fish and Wildlife Service, State game departments, agricultural experiment stations and other agricultural agencies and leaders, sportsmen's organizations and wildlife conservation groups, and other interests, including schools and youth organizations. Through the Pittman-Robertson wildlife habitat improvement programs, for example, 35 states now are providing assistance to soil conservation districts.

The support and cooperation which wildlife conservation groups have given soil conservation districts in the past have been most substantial, indeed, and have gone far in helping the districts to show the way to greater wildlife abundance through soil and water conservation work on the country's farm and ranch lands. The opportunities for continued and expanded teamwork in this field are virtually unlimited. The whole, broad conservation job ahead depends for its successful advancement and completion upon the efforts and contributions of many people and interests working together. The goal is a coordinated, total resource-use program that benefits the entire Nation, as a basis for building for future welfare and national security.

KEEP ABREAST.—A subscription (\$1.25) to this magazine helps keep district farmers well informed.

Find Sermons in Soil

By H. N. KELLY

PASSAGES of Scripture are seen from a new perspective by some Negro ministers in North Carolina. After a study of soil and water conservation during 6 weeks of in-service training, they take a serious view of responsibility for land stewardship.

This was a part of the annual training of active ministers of the Zion Baptist Association. They represent a total of 38 churches located in Anson and Union Counties, and have a combined membership of 4,783. The training course was held in Wadesboro. A number of the ministers are farmers as well as preachers.

John M. Jones, local Negro conservationist, taught the class, which met for 45-minute periods 5 days a week.

Rev. J. R. Faison, a resident minister of Wadesboro, conducted the customary religious training. He is, in addition to his duties as pastor, engaged as a teacher of ministers in active service. Directed from Shaw University's Department of Religious Education, he is sent from time to time to various parts of the State for teaching work. This latest assignment was, by coincidence, in his home town.

This year, for the first time, Reverend Faison is both director of religious education for the Zion Group and also its teacher. Prior to this year the Rev. E. H. Martin has been director. It was Reverend Martin who offered prayer at the opening of a meeting several years ago when

Dr. Bennett was welcomed by the homefolks with a celebration in his honor. That was not only a beautiful prayer, it was also impressive.

This man rarely says anything which isn't expressive, for that matter. Commenting on soil neglect and excuses often offered for sins of omission, he remarked dryly: "The trouble with us is that we are always looking for the other side of the field." This is the person who initiated the idea of the school in conservation recently ended. He himself has attended the classes regularly, although he is no novice at applying conservation. His farm, located a few miles north of Wadesboro, has been operated since 1946 according to a plan made with the Brown Creek Soil Conservation District.

Reverend Faison, former high school principal, is especially well fitted for his present work as minister and teacher of religious education. Six weeks ago he admitted he knew nothing about contour cultivation. He has, however, been so impressed by the studies conducted by Conservationist Jones that he is determined to know more about care of the good earth.

His influence is considerable among his people, and he expects to have similar instruction given to ministers of other sections.

That these ministers will use the knowledge and inspiration acquired there is little doubt. A very early incident during the study course bears out that conclusion. Bob Horton, local soil scientist, had been out on a field trip with the class. They had examined soil profiles, found out how to gauge effective depth and so on. On the way back to town a member of the class rode with Bob. They were talking as they went along, Bob doing most of it to drive home some impressive soil facts. "There you are, Mr. Horton," his companion said. "You have given me a subject for my next Sunday's sermon."

All these men, plus some deacons who have had a part of the training, will use and pass on to others many of the facts and ideas given them.

Those participating will be awarded a cer-

Note.—The author is soil conservationist, Soil Conservation Service, Wadesboro, N. C.

MACHINERY vs. MULES.—The rapidity of change in the agricultural South is noted by C. C. Brown who established the first farm equipment dealership in the Chipola River (Fla.) Soil Conservation District in 1936. Brown points out that there were only six farm tractors in the three counties of the district at that time. He estimates that there are now 1,800.

tificate by the Brown Creek Soil Conservation District. Formal presentation will come during a conference in late spring when a large crowd will be gathered.

The working of the certificate was discussed earlier with Reverend Faison. The first idea was to give those who met certain standards a cer-

tificate of having *completed* the study course. Reverend Faison objected, saying: "No, let it only read, 'took part in the study.' We have, I hope, not completed it. I want these same men and others to take it next year, and possibly every year for a long time."

They will probably do just that.

A Look at the Record

Final figures for last year show what was done on the land, and point to larger opportunities ahead.

By R. W. ROGERS

WE can put down 1952 as an outstanding year for the Soil Conservation Service. It was a year marked by realignments, new responsibilities, changing trends, and an increased load of technical work.

Nearly all of the facts show an advance. Within the year there were greater coordination of program activities, improved standards of work done, and wider and more efficient teamwork. Increased efficiency of the field staff, together with more emphasis on operations management, paid off in terms of more and better conservation put on the land.

Several sources of information are available for evaluating progress. There is ample evidence of an upward trend and of the vast opportunities ahead.

Our 1952 accomplishment in soil and water conservation, is of National significance. In this article I discuss (a) soil conservation district formation; (b) Service assistance to district cooperators and ACP participants; (c) conservation planning; (d) application of practices; (e) soil surveys; and (f) some indications of the job ahead.

At the end of 1952 nearly 2,500 districts had been formed in the United States, territories, and possessions. These districts contain about

80 percent of the agricultural land and 85 percent of all the farms and ranches, as shown by the 1945 Census of Agriculture. Eleven states, the Virgin Islands and Puerto Rico are completely covered with locally-managed districts.

The number of new districts formed annually will become less and less, as we approach total coverage. In 1952, only 82 new districts were formed, as compared with 131 in 1948 and 218 in 1944. Fourteen of the new districts formed last year were by deductions of area from other districts previously organized, and seven districts were discontinued—giving a net increase of 75 districts during the year. The separation of multi-county districts is likely to continue in some states, and there will be fewer additions to older districts in the future.

Several years ago we estimated that 2,640 soil conservation districts would completely cover the agricultural lands of the country, perhaps by 1954. That would leave some 140 new districts yet to be formed this year and next. It now appears more likely that about 60 new districts will be formed this year (1953), and the remainder will be spread out over a few years. Tennessee, Pennsylvania, Missouri, Oregon, and California are the main states where new districts are likely.

This decline in rate of district organization, as national coverage becomes more nearly complete, shows the need for the appropriate agencies to strengthen and improve the educational

Note.—The author is chief, records and reports, Soil Conservation Service, Washington, D. C.

work in areas still outside of soil conservation districts. The formation of new districts is to some extent dependent on such effort. There also are many older districts where increased educational leadership would improve the efficiency of the technical staff assigned to them.

About 1,225,000 farmers and ranchers are actively cooperating with districts and receiving technical assistance from the Service. Many cooperators also receive financial assistance through the Agricultural Conservation Program. This is nearly one-fourth of the 5 million farms and ranches in districts.

During 1952, an all-time record of 262,000 new district cooperators began their long-time conservation programs. This was an increase of 46 percent over the previous year, showing the results of progressive planning. Of this number, 67,500 prepared basic conservation plans with Service assistance, and 195,300 signed cooperative agreements in the initial and advanced stages. This shows a national ratio of nearly 3 initial and advanced agreements signed to 1 basic plan prepared. The regional ratios varied from 0.6 to 1 in some regions to 40 to 1 in others, showing the extreme range encountered in different parts of the country. At the end of the year about 80 percent of all active cooperators had basic conservation plans.

The increase in district cooperators runs approximately 50,000 in 1940, 200,000 in 1944 (4 times) ; 600,000 in 1948 (3 times) ; 1,225,000 in 1952 (2 times). The trend is steadily upward.

During 1952 the Service also provided technical services for 472,000 ACP participants referred by county PMA committees. Of this number, 48 percent were district cooperators, 15 percent became cooperators, and 37 percent (or 176,000 participants) were not district cooperators.

Added emphasis was placed on permanent-type practices. This increased the work load of districts, created new work on additional farms, brought more farmers and ranchers into the district program, improved the standards for certain practices applied—and substantially increased the total volume of work accomplished during the year with SCS assistance.

Transfers of 5 percent PMA funds, along with the assignment of PMA employees to work under SCS technical supervision, prevented a

more severe drain on technical services available to districts. The staffing of 76 additional new districts and the new responsibilities in ACP did, however, mean that the SCS staff was spread thinner and less time was available for the routine matters of districts. Assistance to farmers and ranchers outside districts was more difficult because of the increased technical load. Nevertheless, the combined forces made it possible for the Service to assist in the application of 20 percent more work on the land than the year before.

The progressive planning procedures issued in 1951 had a tremendous impact in 1952. More individual farmers and ranchers were served; many ACP participants became district cooperators; and the opportunity for broad areas of new work was enlarged.

Initial and advanced stages of planning on individual farms and ranches have made it possible for the Service to assist an increased number of cooperators when they are ready to go ahead with certain practices. At the end of 1952, there were 258,000 cooperators who had taken the first and second steps. Each of them is working toward a basic conservation plan fully applied on all their land, with due consideration for land capability and treatment needs.

A basic conservation plan for every district cooperator is still the ultimate objective. At the end of 1952, there were 967,000 district cooperators with basic plans. Their farms and ranches comprise 270 million acres, on which about two-thirds of the planned work has been applied. These figures include active conservation plans prepared previously, and initial and advanced agreements converted to basic plans in the last 2 years.

Watershed planning for conservation and flood prevention is increasing in many parts of the country. Works of improvement on the 11 authorized watersheds are being installed as rapidly as funds permit. Group enterprise work for drainage, irrigation, and erosion control has continued at a normal rate in recent years. All of these watershed, or group job types of work, now consume relatively small amounts of field time of Service technicians. The present urgent work load on individual farms and ranches, in conjunction with insufficient staffing for the total job, seems to prevent further ex-

pansion in these phases of the work at the present time. The interest in such work is high, and the needs are great, to protect and improve the land resources for an increasing population.

The rate of application of practices was at its highest in 1952. For district cooperators, the reported increase in application of practices was 11 percent above the previous year; this, notwithstanding a slight reduction in the available field staff. Including the additional work with non-district ACP participants, which was partly financed by 5 percent PMA funds, there was an increase of 20 percent in application in 1952 over the previous year.

There has been some shifting in types of work on which the Service renders assistance. Vegetative practices increased until 1950 and have declined since, whereas permanent-type practices have increased rapidly since the famous Memorandum No. 1278 in 1951. During 1952 the index for construction practices rose to 143 while that for vegetative work stood at 118 as compared with 1948.

Within the last two years major emphasis has been on ponds, farm drainage and irrigation, while diversions have remained about the same and terraces have declined. Seeding of new pastures and tree planting show the most significant increases, while other practices such as cover cropping, stubble mulching, and strip cropping now are at a fairly uniform rate.

Our soil surveys are now moving at the rate of around 36 million acres annually. About 429 million acres have been surveyed in soil conservation districts—or 37 percent of the agricultural land in the United States and insular possessions.

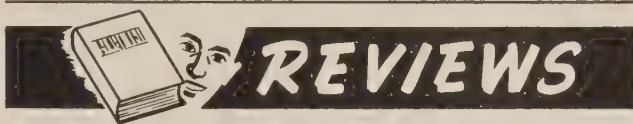
The backlog of soil survey information is becoming seriously low in some sections and needs speeding up. For example, consider the 72 million acres that came under district agreement in 1952, when only 36 million acres of new soil surveys were made. The rate of farm planning is already double the annual survey rate, and it continues to increase. In fact, the lack of adequate soil surveys could become a bottleneck to overall planning. We did not have sufficient resources to carry on the other work and to increase the acreage of soil surveys at the same time.

Past and present progress indicates that—

The historic trend of more and better conservation work by district cooperators can continue upward, especially with the teamwork of ACP participants.

The shifting in types of work may tend to stress permanent practices somewhat more than vegetative or recurring practices.

The dynamic period of conservation action has begun, with vast opportunities for increased accomplishments on the land in the future.



FOUNTAINS OF FREEDOM (Moral and Spiritual Values in American Democracy), by George E. Rotter, Andrew A. Weresh, and Erwin Goldenstein, 229 pp. 1953. Mountain View, Calif. Pacific Press. \$3.50.

All of us who are enthusiastically interested in conservation education do not limit this kind of education simply to the conservation of natural resources. We are also interested in the conservation of human resources.

I recently came upon a new textbook which is, I feel, one of the answers to the problem of aiding directly in developing good traits among our young people. It is a basic textbook, specifically designed to help ninth and tenth graders to develop such traits as thrift, honesty, courtesy, sharing, fair dealing, respect for parents, loyalty, charity and brotherly love. It instills a love for the land and an appreciation of the gifts of nature. I would rate this book as not only excellent for school use, but also as first choice for every home with adolescent children.

The need for more adequate citizenship education in our schools has been discussed a great deal in the last few years. School people who are serious in their determination to stress the importance of high moral fiber and good citizenship will find in "Fountains of Freedom" an instrument that is practical in pointing up the really important character traits.

The book is designed for use in the regular English or Social Studies program of the schools. It is a practical one for both pupils and teachers, since it carries a multitude of activi-



ties which will aid the pupil in developing worthwhile character traits, and in learning of the importance of these traits in every day living. Teachers will appreciate the concise Teachers Manual which accompanies the book.

A splendid treatise on soil conservation is also found in the book. This section is designed to impress young people with the need for soil conservation and their responsibility for acting as trustworthy custodians of the land. Other natural resources are given consideration as well.

It is my feeling that those of us who are professional conservationists, or who are affiliated with any organization concerned with the conservation of human and natural resources, will do well to call "Fountains of Freedom" to the attention of local school administrators and teachers.

The authors are members of the Nebraska Department of Public Instruction who have been engaged in public school work for many years. They are closely associated with the Nebraska Conservation Education Program. George Rotter is Supervisor of Conservation Education in the Nebraska State Department.

—ADRIAN C. FOX

PLEASE KEEP THAT SILT HOME!—In 12 years Worthington, Minn., spent \$250,000 dredging near-by Lake Okabena. The lake is valued highly for recreation and as a cooling unit for the city's power plant. Silt was a problem. Worthington decided to stop dredging and find out where the silt came from. Technicians traced the trouble to Clarion soils on 3 to 4 percent slopes that have been heavily row-cropped for 15 to 20 years. The city is now trying to get farmers to organize a soil conservation district.

DADS CATCH FIRE.—In the Harrison (Ind.) Soil Conservation District, the Vo-Ag teacher asked Area Conservationist Marion W. Merritt to help plan a farm which the Future Farmers chapter has under 5-year lease. Merritt suggested that they get the students' fathers in on the deal. Farm Planner Jim Acres held meetings with the students, assisted by Nuel Edmonds, soil scientist, and John Holwager, forestry specialist. Although the township has been one of the district's weakest areas, the district now has 21 applications for farm plans from students' fathers.

HOW AN IDEA SPREADS.—John C. Bahnsen, work unit conservationist at Rochelle, Ga., reports that the editor of his local weekly paper, *The Abbeville Chronicle*, is using a conservation slogan at the top of the front page on each side of the name of the newspaper. The idea was picked up and passed on to other newspapers by the regional office of the Soil Conservation Service. During the past four months, about 75 requests for slogans have been received and tear sheets from newspapers throughout the region indicate that the slogans are being widely used.

MULTIPLE-USE POND.—Darnely Peterson, a farmer with the St. Croix (Virgin Islands) Soil Conservation District, reports that a farm pond built with SCS technical assistance in October 1952 has been full since the rains began. It provides water not only for Peterson's 40 head of cattle but also for all the stock of the people in the local village, and for washing and other purposes. The ice factory is again able to pump from its well, located a few hundred feet below the pond, and the water level in Peterson's own well has risen 15 feet. The village boys are using the pond for swimming.

78-YEAR-OLD CONSERVATIONIST.—Earnest Hillis, of Fleming County, Ky., has grown 65 tobacco crops during his 78 years.

Since starting a conservation program with the Fleming County Soil Conservation District, this veteran farmer's tobacco yields have increased 400 to 500 pounds per acre. Last year Hillis averaged 2,135 pounds per acre on his 4.3 acre base. His tobacco is terraced, planted on the contour, has sod waterways, and uses a good cover crop each year.



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Soil Conservation

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ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

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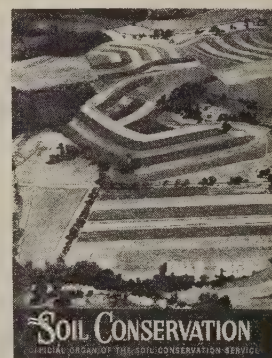
BI-LINGUAL CONSERVATION.—Because there are a lot of French speaking farmers there, the Essex County (Vt.) Soil Conservation District finds it desirable to issue its news letters and other information in two texts, English and French. After the copy has been prepared by one of the SCS technicians, perhaps Dick Gowdey, it is translated into French by Bernard Routhier, a conservation aid. Time and effort put into this extra service are well spent, district directors agree, after gauging the response.

DRINKING WATER IMPROVES.—Drainage in the Satilla River Soil Conservation District around Waycross, Ga., has been bringing farmers a lot of agricultural benefits. J. T. Peacock, who lives in the flatwoods near Dubus Bay, claims it has improved the drinking water, too.

Dubus Bay is a swampy depression with no natural outlet, covering about 200 acres. Farmers and landowners in the immediate area couldn't drain their lands because there were no natural outlets for ditches.

The Satilla River District supervisors requested SCS engineers to make a survey, and the latter designed a 4-mile canal from Dubus Bay into Okefenokee Swamp. Ware County and the City of Waycross assisted landowners in digging it.

"Water from our wells never did taste fit to drink until the canal was dug," Peacock says.



FRONT COVER.—This photograph by Gordon S. Smith shows the 182-acre dairy farm of Walter Hawley, who has been a co-operator in his soil conservation district since 1948. The Hawley farm is in Newlin Township, Chester County, Pa. That is the east branch of the Brandywine showing at the bottom.

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Its Wonders Multiply, Year by Year

Face-lifting in New Jersey has constantly expanding benefits.

By KENNETH B. MALLERY



A FACE-LIFTING—whether small, medium or large—must be something more than a one-day affair. It's "what comes after" that really counts.

Mid-Jersey Soil Conservation District offers the event that attracted 8,000 people to VanZandt Brothers' Broad View Farm at Blawenburg, N. J., in 1950, as an outstanding example of what can be done to build constantly expanding benefits.

With cooperation by owners, farm manager, the district and others, the 270-acre farm has been developed into a highly important demonstration, laboratory and training center for high school and college students, teachers, farmers, and county agents. Each succeeding year brings wider use by all these groups. For 3 years some of them have been observing year-to-year changes brought to the farm as the result of practices established during and since the biggest agricultural field day that the Garden State has ever had.

Boys and girls in science and agricultural classes at Somerville and other high schools make regular visits for outdoor study. Teachers taking summer work at the State Teachers' College at Trenton

make their most important stop there when they go on tours related to class work. Farmers go annually, several groups each year, to observe the changes that have been made and still are taking place. Soils men stop to study soil and its best use, and land capabilities. Instructors bring vo-ag boys, and county agents who are in training, to get first-hand knowledge of what conservation farming looks like, and what benefits can be expected from it.

It is the focal point around which Grace E. Dick, science teacher at Somerville, has introduced a new method of teaching to New Jersey high schools. When she discovered that classroom study has sharp limitations, she remembered that she had received her training outdoors, when she attended a summer conservation school in northern New Jersey. With others, she arranged a trip to this farm for 30 of her pupils.

This was the beginning of what is now widely known as "field laboratory" sessions at Somerville High. They have a strong appeal to boys and girls, and more than 200 have been trained in this way. Miss Dick has grown in her teaching job and now conducts the field sessions without help from technicians.

Note.—The author is work unit conservationist, Soil Conservation Service, Somerville, New Jersey.



Conservation workshop students from Trenton State Teachers' College listen to roadside lecture by Granville Quackenbush, SCS soils specialist.



Jersey farmers study soils at VanZandt farm under direction of Wallace A. Mitcheltree, extension soil scientist.

The "laboratory" sessions begin with a tour of a small watershed, on which road-cut soil profiles, types of erosion, siltation and other problems are observed and discussed. At other stops they delve into the importance of grass and other vegetative cover, and its management. Then they go to Broad View Farm, or some other conservation farming enterprise, where they walk over the fields and learn about contour stripcropping, terraces and rotations. Here they get training in the use of simple equipment. The old army line system of running contour and level lines with hand and tripod levels is followed. Each boy or girl teaches the next student as the equipment is passed along the line. The group learns by doing.

From a conservative start 4 years ago, when permission was hard to get from the school board, the "field laboratory" sessions at Somerville High have climbed to the top rung of popularity in teaching. Mid-Jersey district supervisors put high value on the boys and girls who have been training in their district.

The VanZandts and their manager, Marvin Hunt, also have many reasons to be happy. They have seen the run-down farm make a tremendous comeback and take a strong upward swing in production. Grain yields have jumped 40 percent. Total grass and hay yields have doubled on fewer acres. Corn

silage has gains of 40 percent in quantity and quality.

Manager Hunt declares: "Of course, improved seed varieties, more efficient equipment and better management practices do account for some of the increased production and other operating benefits—perhaps a fourth of it—but the bulk of the gain, surely three-fourths, is the direct result of conservation practices and improved land use.

"These good farming tools enable us to get the full benefit of the better seed, fertilizer and lime. But, mind you, we are using no more lime and fertilizer than we did under our old program. Without contour strips and terraces, the lime, fertilizer, better seed and equipment would not have helped so much."

With 50 acres of grassland producing more than the 100-head dairy herd can eat, where 75 acres did not produce enough for a smaller herd in other years, the farmers are looking ahead in the belief that the place can carry a herd of 125 head, including 75 milkers.

Broad View is a nice spot for boys and girls, teachers, farmers, county agents and others to see for themselves the values of farming the conservation way, and how cooperation with a soil conservation district really pays off.

Still Another Instance

A one-day demonstration starts a farm as a public example of conservation practices.

By J. WILLIAM BELLIS

RESULTS pile up from a small county field day—a relatively small event—held at the dairy farm at St. Bernard's Preparatory School near Peapack-Gladstone, at the Morris-Somerset county line in New Jersey, 3 years ago.

In establishing about half of a complete conservation plan in one day, five bulldozers removed 4,050 feet of hedgerows to facilitate strip-cropping. Six tractors were used in ploughing out 45 acres of contour strips and to help establish 250 feet of soil waterways.

A ditch 2,477 feet long, 4 feet wide at the bottom and 12 feet wide at the top, had been planned to benefit 600 acres. At the field day 900 feet were built and the rest has been completed since. As a starter in reforestation, 1,000 black locust seedlings were planted.

In one day, all this was accomplished with a minimum of technical assistance.

The farm is astride the dividing line between two major geological formations, a fact which enhances its teaching value. An excellent basis for land-judging contests is provided at pits dug to expose profiles in four different land capability classes. A

Note.—The author is SCS work unit conservationist at Morristown, New Jersey.



Conservation "picture window" at St. Barnard's School Farm.

high spot serves as an observation post for discussing soil and water conservation practices.

On-the-spot evidence of heavy topsoil losses through erosion makes it possible to conduct yield studies convincingly. Sample corn yields on eroded and non-eroded soil in the same field have been weighed, and differences running as high as 26 percent in favor of non-eroded soil have been found.

Students in St. Bernard's science course get out on the land for instruction in measures to protect and revitalize the soil. Boys and girls from other schools, and groups from garden clubs, come fre-

quently in conducted tours. Members of the local county committee and of USDA's Production and Marketing Administration get special conservation instruction here. The north Jersey area fertilizer dealers' training class had a special session at the farm this year. Technicians of the Morris County Soil Conservation District bring groups of farmers who want to become cooperators to observe recommended practices.

Expansion of the productive capacity of the farm started with the field day 3 years ago, but the greater benefit came later and is still coming.

He Brought the Meadows Back

It took seven small dams and six long years, but Paul Thurston's ranch now has water, grass, and a future.

By EARL B. SPENDLOVE

SIX YEARS AGO Paul Thurston of Hurricane, Utah, bought a ranch on the headwaters of Little Meadow Creek a few miles east of Zion National Park. He wondered how the creek had come by its name. There certainly weren't any meadows in sight. The stream had cut a gully 40 to 50 feet deep in places, and what evidently had

been meadow in the days of the early settlers now was barren and dusty.

Thurston learned that the history of the ranch was similar to that of others in the inter-mountain area. The terrain is steep and rough. Natural water is scarce, and usually found in the bottoms of narrow, steep-sided canyons.

When livestock grazing began in this area, most of the canyon bottoms were highly productive

Note.—The author is soil conservationist, Roosevelt, Utah.

meadows. Livestock concentrated there because of the highly palatable feed, and because the meadows were easily reached and contained the only natural water.

Livestock soon killed out the grasses that held the soil and prevented erosion. It wasn't long before the gullies in the bottoms had lowered the water table and moisture-loving grasses couldn't grow. The formerly high producing meadows were replaced by brush and unpalatable weeds, or were left practically devoid of vegetation.

This was the situation when Thurston first saw Little Meadow Creek. He was worried by the gully, and by the fact that the deep, rich soil in the bottoms was producing nothing of value.

His concern led him to seek assistance from the Kane County Soil Conservation District. He and a technician went over the ranch with care.

The first decision was to reduce the number of livestock so that vegetation could improve sufficiently to retard the flow of water during flash floods. Next in order was to construct a dam at the head of the drainage where a natural spillway was avail-



Thurston, and mount, where the grasses now grow tall.



Portion of original gully now below large dam. It once ripped along the full length of the meadows.

able. The idea was to slow down the rush of water during torrential downpours.

Thurston then was ready to go to work on one of the more promising areas along the creek. Here the gully was not so deep, and water could be diverted over adjacent flat land. Seven small dams were put up at 200-foot intervals along a quarter mile of the stream.

The first dam was located so that the stream, normally flowing about .5 c.f.s. would be spread on either side of the gully. Spreader ditches were given about a .2-foot fall per 100 feet. Water was turned out over the adjacent land through openings in the ditch. Since part of the water would eventually return to the gully, the other dams were located to catch this water and again turn it out of the main gully.

The water had to drop about 25 feet at the lower end of the spreading area, so the head cut constantly progressed up the stream. In order to eliminate



Lush growth of grass where some of the series of small dams can be seen.

this, the water was diverted into a small side drainage that had been filled with brush and rocks to prevent washing.

After the dams were built, about six and a half acres of the more level land were cleared of brush, which was pushed into the gully between the dams. This helped considerably in filling the gully and provided about 20 acres suitable for seeding to grass.

However, before seeding, the area was fenced to control grazing. This, according to Thurston, is a "must" in any seeding program. Since Thurston and the district supervisors were interested in determining which species would grow on this land, several grasses and legumes were seeded.

Species used were crested, western, tall, intermediate and stiffhair wheatgrasses, smooth brome and yellow sweetclover on the drier areas. Reed canary, smooth brome, orchardgrass, redtop and red clover were seeded along the stream and where moisture was good. The grasses were seeded both in mixtures and in pure stands so their adaptability and relative palatability could be determined.

The grasses all did well from the start. By the summer of 1952, the gully had filled to the extent that about 10 acres along the sides of the creek had become sub-irrigated and some of the moisture-tolerant grasses were beginning to invade the areas

that had been seeded to wheatgrasses. Raising of the water table, however, was part of the plan, and moisture-loving grasses are being encouraged on the wetter areas.

This portion of Little Meadow Creek now looks as it must have during the days of the early settlers. The gully is almost filled, and there is a lush growth of grass along both sides of the stream. People who see the area now find it hard to believe that this was an ugly scar in the canyon bottom just 6 years ago.

"Can the average rancher afford to do this type of work?" rancher friends have asked Thurston.

"The average rancher can't afford not to do such work," Thurston replies, and he has figures to prove his statement.

His itemized account of what he has spent on the 20.4 acres totals \$794.12. This includes the cost of land clearing, building dams, fencing, seed, overhead, and of work done with his farm tractor. A cost of \$36.72 an acre.

About half of this land now is sub-irrigated and compares favorably with native meadow which sells for about \$100 an acre. The dry land that is seeded to grass is worth at least \$25 an acre. Thurston says

(Continued on page 279)

Coming Through the Drought

By **LEON J. McDONALD**

LIVESTOCK men of Oklahoma last year proved that conservation ranching is good business.

A 5-months drought, an unusually early frost, depleted feed reserves, larger numbers of cattle on the range, and declining prices plagued stockmen last fall. But those who had been practicing soil conservation for a number of years came through with colors flying.

Take A. P. Atkins, as an example. Atkins has practiced conservation in operating his 9,000-acre spread south of Hardesty in the Oklahoma Panhandle ever since 1941, when he signed with his Texas County Soil Conservation District. Now he is secretary of his district board.

All the rain he got in 1951 was only 10.60 inches, but Atkins says: "I have been able to keep my

whole cow herd, yearling heifers, and the entire 1952 calf crop without acquiring any additional range or purchasing any feed except the customary amount of protein supplement."

Atkins follows a flexible program. He stocks conservatively with grade Hereford cows, and carries the calves over to yearlings except in periods of extreme drought.

"The best protection against drought on my tightland range," he explains, "is a natural cover of grass which lets the soil absorb moisture whenever it falls, protects new growth, stimulates natural reseeding, and provides a reserve of feed during a long dry spell."

Atkins stocks his range with cows at about 75 percent of the estimated carrying capacity and rests each pasture one year out of five. He has fenced his pastures in such a way that they have about the same carrying capacity. He has "live" water in some of the pastures. He has added nine

Note.—The author is assistant state conservationist, Soil Conservation Service, Oklahoma City, Okla.



Percy Martin, of McCurtain County, Okla., and two of his young Hereford bulls.



Good cattle graze on the Atkins ranch near Hardesty, Okla.

stock ponds and four wells to provide plenty of water at convenient locations. He maintains 15 miles of fire guards.

Atkins gives his conservation program credit for increasing his calf crop 10 percent and adding 50 pounds to the weight of his calves. He has increased the carrying capacity of his ranch at least one-third with a potential gain of 25 pounds of beef per acre from cows and calves. He conservatively figured the value of his conservation ranching for 1952 alone at \$50 a head on the 700 cattle he was wintering.

When the brother team of Claude and Bill Brannan started with the Love County Soil Conservation District in 1943, the native range on their 4,500-acre ranch near Marietta was generally in only fair condition. Now most of their native grassland is in good and excellent condition.

In carrying out their conservation program, the Brannans balanced the number of cattle with the grazing available, deferred the grazing where needed, and divided several pastures to make livestock and grazing management easier. They grew sweetclover, fescue, vetch and small grains on 400 acres of cropland for supplemental pasture and put up about 400 tons of ensilage annually. Sixteen ponds and five wells were added to provide an adequate water supply and distribute grazing uniformly.

Claude Brannan, a soil conservation district supervisor since 1948, says that the carrying capacity of their grassland has increased at least 20 percent. Their calves formerly weighed 400 pounds at weaning age; now they weigh 500 pounds. These two benefits add up to about a 50 percent increase in pounds of beef an acre.

For many years the Buxton Horse Shoe Ranch near Roff has been a mecca for Oklahoma's cattle-

men. On this 9,000-acre ranch of native range, two blades of grass have been made to grow where one grew before.

C. C. Buxton says, "Where we were producing 5,000 bales of hay each year, we now produce about 20,000, and where we grazed off about all our grass we now leave as much as we take."

Because of the drought no native hay was cut in 1952. The ranch carries a 2-year's supply, however, so there is never a hay shortage there. As a substitute for supplemental feed last summer, the ranch turned 300 cows into a 1,500-acre pasture where it normally cuts hay. This relieved pressure on the grass on the rest of the ranch.

Other good management practices here included a 17 percent reduction in cattle numbers in 1948 (which did not result in any net decrease in pounds of beef produced): deferred grazing on 3,000 acres in 1950 during the growing season; division of three pastures into six pastures to obtain more even distribution of grazing and to permit deferment for range improvement; building of 12 additional ponds; development of 12 new wells; placing salt to encourage grazing in areas of lightly-used grass; properly stocking all pastures; and production of alfalfa hay on 260 acres properly fertilized.

Buxton estimates that these coordinated conservation practices have given him an overall 15 percent increase in carrying capacity, while his range is still improving. Horse Shoe Ranch is with the Pontotoc County Soil Conservation District. It is through their districts that farmers and ranchers obtain technical help from the Soil Conservation Service in planning and applying a conservation program that fits their land.

The Percy Martin Ranch, south of Valliant, has pioneered in grassland developments in southeast Oklahoma. Of the 1,683 acres in the ranch, 480

acres are in native grass and 690 acres in tame pastures mostly a combination of bermudagrass-whiteclover and tall fescue-ladino clover. Large quantities of commercial fertilizers were used to establish the tame pastures, and still are applied regularly as top dressing. The perennial bermudagrass and tall fescue overseeded with clovers give almost year-round grazing.

Management practices include proper stocking, deferment of grazing when indicated, cross-fencing, development of springs and ponds to better distribute grazing, and construction of fire guards to protect valuable grasslands.

Martin says that his calf crop has increased from 70 to 95 percent and the carrying capacity of his ranch has been upped from 15 to 20 acres per cow to 4 acres per cow. Beef production per acre has increased from 20 to 125 pounds.

Because of his perennial grasses that are ready to grow when the rains come, and good management practices through the years, Martin survived the 1952 drought in good shape. He is getting the help of the Valliant Soil Conservation District in applying a conservation program.

Warner-Borum-Warner is a name well known among cattlemen. The 7,000-acre ranch in Muskogee County is managed by R. C. Borum, a pioneer Hereford breeder and agricultural leader. About 3,500 acres consist of native range with the blue-stems, Indian-grass and switchgrass predominant. Another 1,750 acres of former cropland have been set to bermudagrass overseeded with legumes. Hay is obtained from 700 acres of native meadow and a 150-acre meadow of sericea lespedeza. Alfalfa is grown on river bottom land not a part of the ranch.

Supplemental feed sources consist of 400 tons of ensilage, 100 acres of tall fescue, and occasional grazing of winter grains and vetch grown on some of the 1,000 acres of cropland.

Two tons of lime and 1,000 pounds of rock phosphate have been applied to each of the 1,750 acres of tame pastures.

Borum, chairman of the board of supervisors of the Muskogee County Soil Conservation District, believes in small pastures properly stocked, and plenty of watering places conveniently located to distribute grazing evenly.



E. S. Cordell, technician, and Percy Martin take a close look at a KR bluestem pasture.

Fish Culture in Rice Paddies

In Haiti two crops can be grown on the same field.

TWO-THIRDS of the people of the world don't get enough of the right kinds of food to eat. A lack of protein is one of the main diet deficiencies in hunger areas, yet fish, an excellent source of protein, is often available for the taking.

Although the sea is the main source of fish, fresh-

water areas are also rich sources. An acre of fresh water will produce much more animal protein than the same area in pasture.

Fish have been cultivated in ponds in Asia and Europe for hundreds of years, but this practice has been studied scientifically only recently. FAO, the

Carp and tipalia fingerlings imported from Marion and Jamaica are placed in ponds in Haiti. Inset: Carp are transferred from drainage canal for study of growth and reactions to environment.





Excavating for a pond on a farm in Haiti. It was filled by water diverted from a small stream.



Catching fish is a new and exciting experience for the farmers of Haiti.

Food and Agriculture Organization of the United Nations, is helping to spread this knowledge of pond fish culture.

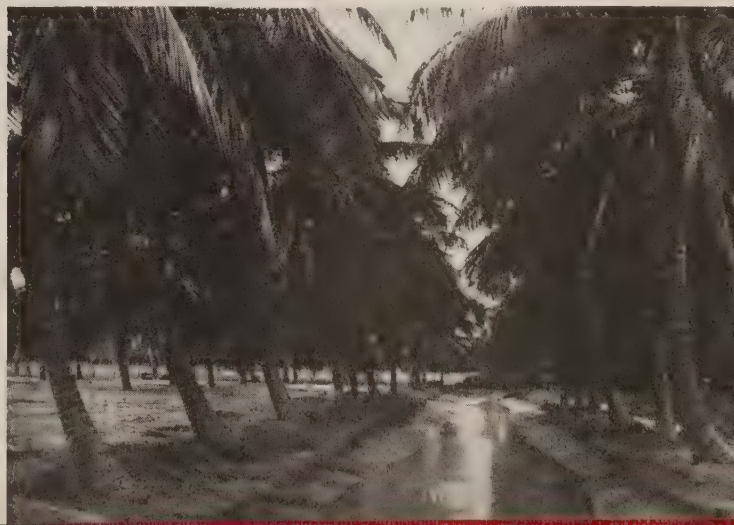
In Haiti, for instance, the Government asked FAO to advise on the development of its resources. Among the FAO recommendations was the use of fish culture in Haitian rice paddies and other ponds. The Haitian Government set up funds to initiate this project and FAO sent a specialist in pond fish culture methods, Dr. S. Y. Lin, to work with local officials.

Experimental breeding ponds were set up and a fish called the Sepat Siam was brought from Thailand to populate them. This type of fish does not have to be under water in order to breathe—it can live in mud if its gills are moist.

The fish swim around while the paddy is inundated, and when rice harvesting time comes the farmer digs a hole in the lowest corner of the paddy

(Continued on page 282)

Drainage canal used for experiments with fish culture.





Hugh Tuttle

ONE of the youngest stars on the Nation's soil conservation team is Hugh Tuttle, who has been chairman and treasurer of New Hampshire's Strafford County Soil Conservation District ever since he helped organize it 7 years ago. Barely in his thirties, he has already run up a string of accomplishments as supervisor that would do credit to any normal lifetime of devotion to the soil. A member of the State Soil Conservation Committee, he is also president of the New Hampshire State Association of Soil Conservation District Supervisors.

Perhaps the 325 years of New England farming background wrapped up in Hugh's rangy frame provide the unusual fiber of his brand of leadership. The Tuttle family, without exception, has farmed its Dover headland from the time the British Crown made its original grant in 1636. Ninth and tenth generation Tuttles operate a thriving, fresh vegetable enterprise. In partnership with his dad, William Penn Tuttle, Hugh crops 50 of the total 180 acres, including about 16 acres of leased property. With two trucks going full tilt in season, father and

son furnish tough competition in the Dover-Somersworth-Rochester-Portsmouth market.

Hugh comes from a long line of farmers who prided themselves on their straight furrows, and it was pretty revolutionary for him to take up cultivation on the contour. Asked why he went overboard for conservation, Hugh generally replies: "Simply because we saw that soil- and water-saving was good business. That's what sells us Yankees." But there's plenty of evidence of Hugh's broader interest in the program, such as his trips to the NASCD conventions—to Oklahoma City in 1951 and to Cleveland in 1952. He's worked tirelessly with district farmers toward widening the spread of conservation benefits.

Hugh Tuttle mixes his practicing and preaching. His confidence in diversion terraces, for example, is founded in his own. He's seen it check erosion in his best field. He believes in irrigation, because he adopted it during last year's severe drouth, and figures that it salvaged enough crops to pay for the piping. He advocates farm ponds based on the usefulness of two he has himself installed. He makes a good case for woodland conservation from personal experience, such as the saving of \$700 in sawtimber that he realized while building a tool shed from selective cuttings.

Hugh spent 3 years at Harvard University but his route back to the land led through additional study at the agricultural college of the University of New Hampshire. Hugh says the intervening years have proved that he'd never be completely happy without having both feet planted firmly on the good earth around the old homestead. And the best part of it, Hugh vows, is his identification with the district movement.

Already, there are indications that the distinguished looking young man may become a sort of "Richard Halliburton" in the soil conservation adventure. At any rate, he's hard-pressed to keep up with the demand for his services as a speaker for farm and service groups throughout the Northeast. They say you can hear a pin drop when Hugh's on his favorite subject—strengthening America's prime resources.

—BERNHARD A. ROTH

READ WHILE YOU WAIT.—The West Ottawa (Mich.) Soil Conservation District, in addition to distributing its annual report to cooperators, places copies in the waiting rooms of all doctors and lawyers in the district.

BROUGHT MEADOWS BACK

(Continued from page 272)

that the land on which he spent approximately \$750 now is worth at least \$1,250, a pretty good return on his investment.

In addition to the dams and water spreaders, Thurston has built a 50-foot-high dam below the water spreading area to create a lake. This lake was stocked with fish in 1949, and they have fared well. Since water from the dam can be used only on a half-acre garden, it may not pay for itself in dollars and cents. However, if you happen to be a fisherman and hook one of those fighting rainbow trout, you'll know that Thurston is getting full value from his lake.

SPRIG PLANTER.—A retired manufacturer of Tulsa is back in business now because of his interest in soil conservation.

Harley L. Pray sold his winch manufacturing company in 1946 because of poor health. Two years of fishing and loafing in California gave him new zip and an urge to get back in harness.



Grass planter during performance test.

During his interlude of leisure he often mulled over the conservation work he had done on his ranch in Oklahoma. He recalled, for instance, the planting of bermudagrass—and what a back-breaking job that had been! There surely must be an easier and quicker way to get it going.

Back home again in Tulsa he got in touch with the supervisors of the Arkansas-Verdigris Soil Conservation District, and Warren McCarty, work unit conservationist. Wasn't there something he could do to manufacture a machine needed especially in soil conservation work? Sure thing! he was told.

A bermudagrass sprig-planter had just been developed at the Fort Worth regional office of the Soil Conservation Service. It would be a public service to have it made generally available, and any interested manufacturer was welcome to a working model of the machine.

In the fall of 1948 Pray got his first look at a working model, and in the spring of 1949 he delivered the first planter in the district. Hundreds have followed since.

Pray's customers are soil conservation districts, individual farmers and ranchers, and private contractors who do agricultural work. He sold three of the machines to a British agency that is revegetating areas in South Africa.

The tractor-pulled machine opens furrows, drops the Bermuda sprigs at proper intervals, spreads fertilizer, and closes and firms the furrows.

Pray tests the machines—one-row and two-row planters—on his own 160-acre farm.

Your Business, and Mine

A metropolitan newspaper sponsors Missouri awards for outstanding soil and water conservation.



Record crowd watches presentation of awards in Frances Howell High School, Weldon Spring.

Dr. Robert M. Salter hands plaque to winning board of supervisors of St. Charles County Soil Conservation District: A. J. Boschert, J. B. Carmichael, Leeman Sehr (chairman), B. H. Feldewert and Ora Schnarre.



By HOWARD C. JACKSON

SOIL CONSERVATION is everybody's business, a truism which the St. Louis Globe-Democrat emphasized in a recent editorial. It is the concern of merchant and banker in village and town, and of industrialist and consumer in the city.

It is also the business of the Globe-Democrat. This newspaper last year joined with the Soil Conservation Service, the State Soil Districts Commission, and the Missouri State Association of Soil District Supervisors, to conserve the state's most valuable natural resource—its topsoil.

The results of the first year of this cooperative effort are now in, and it is possible to evaluate the program. Some of the benefits are readily discernible. In 1952 there were more sound conservation practices applied to Missouri land than ever before. There were more farmers participating in the program. And there were more soil districts organized.

Other items, while less tangible, are equally significant. The program stressed community effort, and

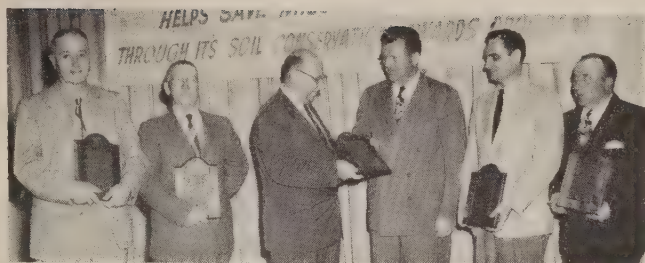
stimulated competition among soil districts. It awakened interest in conservation on the part of business and industry in the state, as news stories and special articles dealt with the relationship of conservation to community life.

In the three previous years Missouri engaged in an awards program sponsored by the Goodyear Tire and Rubber Company. At the end of 1951, this program moved along to other states, and more recently has expanded its program to include the entire nation.

Taking over as sponsor in Missouri was the Globe-Democrat. This metropolitan newspaper had long been interested in conservation. Through its editorials, written by Charles C. Clayton, it had been most effective in helping to whet interest in Missouri.

Clayton explains that his enthusiasm for soil and water conservation was aroused when he visited the St. Charles County Soil Conservation District a number of years ago.

Note.—The author is acting state conservationist, Soil Conservation Service, Columbia, Mo.



Plaques go to members of board of supervisors of Dunklin County Soil Conservation District, winner in southeast Missouri area. Charles C. Clayton, editorial writer and chairman of program's advisory committee, made presentation. Left to right: Gaylord Wisner, SCS technician working in district; Dave Andrews, board vice chairman; Clayton; Nelson B. Tinnin, board chairman; Joe H. Scott, Jr., secretary; and Vance Watson, treasurer. James Dunscomb, remaining board member, was not present.

"Seeing at first hand what can be done and hearing the comments of progressive farmers who practiced conservation," he said, "I began to see what it would mean to Missouri and to St. Louis if all the farm land in this state were planned according to good land use and proper conservation practices were employed. The potential income to the farmer was impressive, and even more significant was the benefit to the businessman and the city."

The Missouri Soil Districts Commission agreed to participate in the handling of a statewide program through its executive secretary and its state office—a program which the Globe-Democrat was asked to sponsor. Publisher E. Lansing Ray was happy to accept the responsibility and in May 1952 the paper announced the launching of the Missouri Soil Conservation Districts Awards Program:

"The Globe-Democrat is joining in the fight for more conservation in this state because we recognize not only the importance of soil conservation to agriculture, but also its direct relationship to flood control and its importance to business. Products from the land provide the raw materials for more than half of St. Louis' industry.

"Missouri farmers provide a profitable market for our manufactured goods. This two-way relationship is the basis of a stable economy in Missouri. The Globe-Democrat sincerely hopes that its sponsorship of the soil conservation districts awards program will encourage more sound soil conservation in this state and will help awaken business and industry to the realization of their stake in preserving and improving Missouri's most valuable natural resource."

The first step was to form an advisory committee

to draw up a plan and administer it. Clayton was chairman. Other members were Lowell Burns, agricultural director, St. Louis Chamber of Commerce; J. H. Longwell, Dean of the College of Agriculture of the University of Missouri; Joe Grant, Williamsburg, Mo., representing the Missouri Association of Soil Districts; Bernard Pfost, Cowgill, Mo., Caldwell County Soil District; Nelson Tinnin, Hornersville, Mo., representing the State Soil Districts Commission; Rt. Rev. Msgr. George J. Hildner, Villa Ridge, Mo.; Howard C. Jackson, Columbia, Mo., representing the Soil Conservation Service; and Robert S. McClelland, Columbia, executive secretary of the State Soil Districts Commission, who was to serve as secretary.

The committee agreed to stress community rather than individual effort. The members also felt that the awards should be attractive enough to encourage spirited competition on a group basis. Sweepstakes prize was made an all-expense trip to the annual convention of the National Association of Soil Conservation Districts for from eight to ten persons from the outstanding district of the state.

The Missouri Association of Soil Districts is divided into five areas, with a director elected from



Shelby County Soil Conservation District won in the northeast area. Recipients of plaques were: John K. Bradley, Howard Thompson, Guilford Erdman, John Douglas, and SCS's Donald Snook.

each. This division suggested the other awards. It was decided to recognize the winning district in each area with a "recognition party," in which everyone could participate. Bronze plaques would go to the supervisors of the winning districts.

A comprehensive score sheet was devised, and entries invited. Amazingly, there was 100 percent participation. Every soil district in Missouri entered

the '52 contest and every governing board laid its strategy for winning the grand prize.

Throughout the year there were special articles and feature stories in the *Globe-Democrat* telling of progress.

In January of this year the results were announced on the front page of the *Globe-Democrat*. Many other state papers, and numerous radio stations, wholeheartedly joined in telling the story of the year.

Area winners were Worth, Clay, Shelby, St. Charles, and Dunkin County Soil Districts.

The coveted grand prize went to Worth County—the smallest district in the state. This district was headed by an enterprising and hard-driving taskmaster, Chairman L. C. Lutes, and it turned in an impressive record.

In February 10 persons from Worth County, including the supervisors and their wives, boarded the train for Omaha, Neb., site of the NASCD convention. With all expenses paid for 4 days, the winners not only had a fine time but also gained a deeper understanding of the larger cooperative advantages of working through soil districts. They wore blue-ribbon “state champion” badges provided by the *Globe-Democrat*. They received special recognition at the convention sessions, were interviewed on the radio, and were given a big play by the press.

In March, the “recognition parties” were held in the five area-winning counties—Worth County in Grant City, Clay County in Liberty, Shelby County in Shelby, St. Charles County in Weldon Springs, and Dunklin County in Kennett. More than 2,000 cooperators, their families and their friends attended as guests of the *Globe-Democrat*.

Speakers at these parties included James S. Russell, nationally known farm editor of the *Des Moines Register-Tribune*; Lt. Gov. James Blair of Missouri; Robert M. Salter, Chief of the U. S. Soil Conservation Service, and Fred O'Hair, farm conservation director of the National Retail Farm Equipment Dealers Association. Three acts of entertainment were provided for each party, local high school bands furnished musical entertainment, attendance prizes were given, and bronze plaques awarded.

Welcoming the guests at the parties, Clayton paid tribute to the cooperators, their wives and local businessmen, for the impressive record established in 1952 in putting more conservation on the land,

and in telling the story of soil conservation to their neighbors and friends.

Each guest was presented with a copy of the *Globe-Democrat* “Creed of the Soil,” suitable for framing.

The awards program for 1953 has now been announced and every district in the state has entered. All district supervisors agree that the competition this year will be even keener than last year, and that the district which goes to the national convention in New Orleans will have to turn in a really outstanding job. The supervisors realize that whether their own districts achieve the top award, or even an area award, everybody wins.

This soil awards program is successful because it is organized and administered locally, with the cooperation of the State Soil Districts Association and the State Soil Districts Commission, and because it enjoys the impetus and publicity provided by a metropolitan newspaper which has demonstrated its sincere interest in the farmer and his problems.

FISH CULTURE

(Continued from page 277)

and drains off the water and the fish migrate into the hole. The farmer then takes whatever fish he wants from this mud-hole and leaves enough behind so that when the rice field is flooded again the fish escape and start breeding. This type of fish is a fast breeder and a fast grower. It is predominantly vegetarian, thus can live on the minute plant life found in the flooded rice fields. It's good for the rice, too, since it stirs up the mud, and aerates the roots. It also adds fertilizer, and destroys many insects. It has been estimated that fish can increase rice yields as much as 7 percent.

Dr. Lin also felt that the common carp might do well in Haiti's tropical climate, so he is now experimenting with carp. He excavated a farm pond and diverted a small stream to fill it up. The carp, too, is a fairly fast growing fish and should give a considerable yield per acre per year.

Fish are easy to handle and crop. The big advantage to fish culture is that the farmer who wants to use the fish can catch it and use it fresh without having to process and store it. The fish he does not want he just leaves in the pond, alive. There's no storage or transportation problem.

Iowa Work Books

IT WAS Frank B. Reed's idea to work up a series of questions on conservation which grade school teachers could work into their various science and nature study courses. Reed is farm planner in the Tama County (Iowa) Soil Conservation District.

The questions, with simple explanatory discussions on various phases of conservation, were mimeographed and distributed to the schools. These booklets, with revisions and additions, have become known as "Conservation Work Books." About ten thousand such booklets are being used this year in

Note.—The author is district conservationist, Soil Conservation Service, Marshalltown, Iowa.

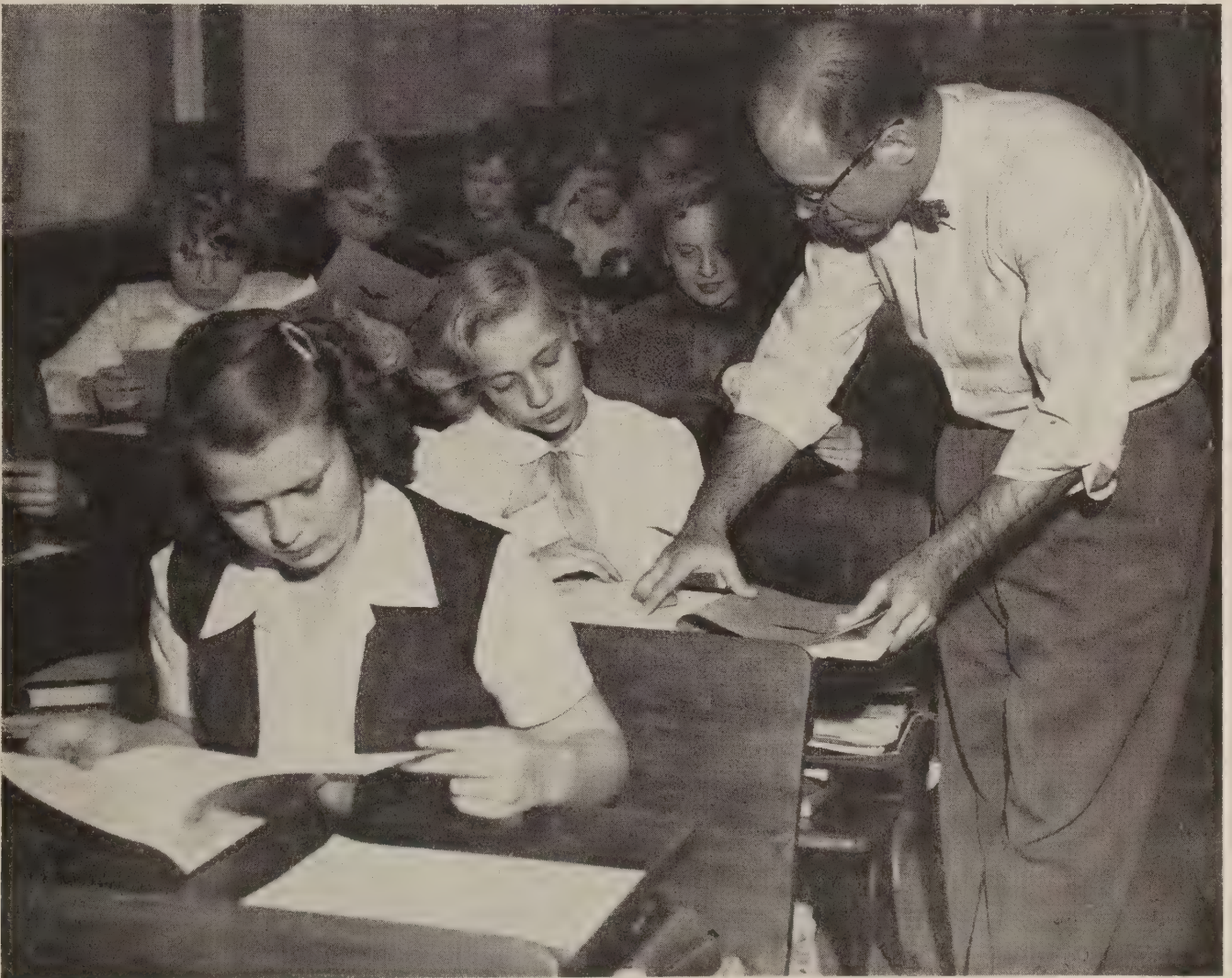
six soil conservation districts of east central Iowa.

Last year Reed and I were invited to attend the national convention of the Izaak Walton League in Tulsa, Okla., there to explain the conservation work book program. Since that occasion, inquiries

By H. HOWARD OAK

about the program have been received from all parts of the United States. It is already in use in several states.

Thus far, conservation work books have been developed for use in the sixth, seventh and eighth



Ray Nyhan, an eighth grade teacher in Marshalltown, explains a point in a conservation work book. One of his pupils last year won the county-wide contest for the best work book. (Photo by Marshalltown Times Republican.)

grades. Book No. 1 deals with the conservation of soil and wildlife and the balance of nature. Book No. 2 takes up the conservation of mineral and forest resources, flood control and the conservation of water. Book No. 3 discusses soil fertility, farm conservation planning, and legumes and grasses. All the books have sections intended to familiarize pupils with the names of local, state and national conservation personnel and agencies. The contents are coordinated with a teachers conservation manual issued by the Iowa State Department of Education.

The work book program in Iowa was made possible financially through the interest and generosity

of several agencies. In the Marshall County and Grundy County Soil Conservation Districts, the program is sponsored by the Izaak Walton League and the districts. In the Black Hawk County Soil Conservation District, sponsorship is by a coordinated council of five wildlife organizations and the district. In the Tama Soil Conservation District, financial responsibility is assumed by the district alone. These agencies not only have furnished the work books to the schools, but also have provided awards of medals, plaques, and certificates for presentation to outstanding pupils. The cost to sponsors in these four districts this year will run about \$900.

Louisiana Showcase

Two land utilization projects teach farmers how to manage their woodlands for continuing income.



By H. B. MARTIN

Timber production stimulates business. Here a train of flatcars loaded with pulpwood is being made up in a yard at Homer, La.

A NUMBER of years ago the Government came to the aid of landowners in northwest Louisi-

Note.—The author is state conservationist, Soil Conservation Service, Alexandria, La.

ana by buying 31,157 acres of theretofore unprofitable cultivated and forest land.

Soil depletion and a depressed market had cut farm income to a point where private owners could

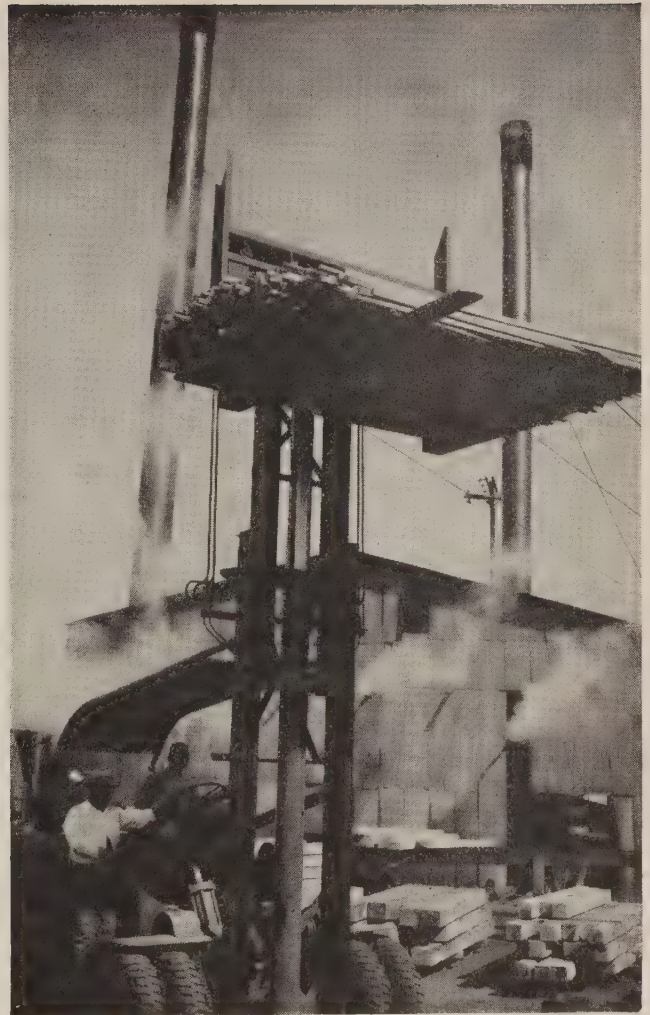
not afford to give such land the treatment needed to protect it and build it back to productiveness.

Many of the woodlands were in young trees or worthless scrubs. They required management of a kind then beyond the ability and means of the owners.

Management of the government-purchased tracts, known as "land utilization projects," was turned over to the Soil Conservation Service. There were 12,624 acres in the project near Minden and 18,533 acres in the project located between Bernice and Homer. The land lies in Webster and Claiborne Parishes.

As custodian of these two projects, the Soil Con-

Worker girdles oak tree. Contracts specify that over-topping cull hardwoods must either be removed or killed.



Industry's feverish activity is marked by smoking chimney's belching steam exhausts and grotesque carriers that whisk loads of lumber hither and yon, as at this sawmill.

servation Service went to work controlling erosion and reversing the trend toward soil depletion. It developed pastures and improved woodlands through proper management. And in doing its job it also made available areas for recreational centers.

Last year the two projects brought in \$153,678 from forest products, grazing permits and concession fees. Since the Service entered the picture, the income has amounted to \$616,571.

Each of the two parishes receives 25 percent on the basis of the acreage it has in the project. This payment is in lieu of taxes that would be forthcoming if the land were privately owned. The payment for 1952 comes to \$1.03 per acre in Webster Parish and \$1.36 per acre in Claiborne Parish. A recent study showed that comparable nearby land privately owned was paying a tax of 21 cents per acre in Webster Parish and 16 cents in Claiborne.



Once a worn-out cotton field near Minden. Planted to slash pine in 1941 as part of land utilization project, it was thinned for first time last summer. Culls and every other row of trees were taken out, 65 percent of stand being removed. When next cutting is made in 1957, the volume of timber will be a third greater than in this first thinning.



SCS technicians mark and scale merchantable pine trees near Claiborne Parish.

The rest of the project revenue goes to the United States treasury. The Soil Conservation Service has a fixed budget that sets aside a specific amount for operation, maintenance and improvement of the projects, and none of the income is applied to these purposes.

Of last year's total returns, forest products accounted for \$146,716. Since 1944, income from the woodlands in the two projects has totaled \$571,607. The general trend has been upward since 1943, when the revenue from the woodlands was but \$3,299. Production will continue to increase for many years under a system of sustained-yield cutting, removal of culls and worthless hardwoods, encouragement of new pine growth, and protection against fire and grazing.

The woodlands have done more than produce the bulk of the income from the two projects. They have constituted an effective showcase for farmers throughout northwest Louisiana.

Farmers learn how to manage their own woodlands by observing operations in the projects. On the Minden project local farmers themselves cut trees under permit. The management practices followed here are the same as those recommended for use on farms.

On the Homer project the timber is sold on contract, going usually to sawmill operators. The woodlands are divided into compartments which are subdivided into 40-acre tracts which are cut every 5 years.

An SCS crew of four men paves the way for the letting of cutting contracts. Three men mark the trees to be cut, measure their diameter, and estimate their length. The fourth man jots down the figures from which he later calculates the volume of timber ready for harvest. Sealed bids are invited on this volume of timber, and the contract goes to the highest bidder.

A lumber company of Bernice has been one of the successful bidders. One of its officials says: "The Homer project is a big help. If we are successful bidders, we figure that it will supply from a third to a half of our production. We run about 7 million board feet a year. We've used about that much from the project the past 3 years. We employ about 160 people the year around. They all live in Bernice, or within a 12-mile radius. Our annual payroll runs to \$350,000. So you can see what the woodlands project means to our community.

"The project has also helped many of our farmers. They have learned from the project how to manage their own woodlands to get the most out of them. Our average farm woodland produces about 200 board feet per acre per year, but it ought to be growing 500 board feet. A lot of our farmers have brought up their production by seeing how its done on the project."

On the Minden project in Webster Parish cutting permits are issued to about 70 owners or operators of small farms of the area. As in the Homer project, the trees ready for cutting are marked by SCS technicians and the woodlands are divided into 40-acre plots that are harvested in turn once every 5 years. Farmers are limited to one permit a year, so that as many as possible may benefit. They take out posts, poles, pulpwood, and sawlogs. As the holder of a permit usually hires several helpers, this system also serves to spread employment. Webster Grigsby, one of the farmers holding permits, says: "This plan helps me get my groceries and pay my small debts. In 1951 and again last year I was able to raise my crops of cotton, corn, sweet potatoes and peas without borrowing money except for fertilizer, which I bought on credit."

Grigsby got out posts and pulpwood. Six men worked for him. He netted about \$600 in the 2 months it took him to get out the quantity of posts and pulpwood specified.

GOVERNOR CITES VALUE OF CONSERVATION.—

Governor John S. Battle of Virginia, in a radio talk presented during Virginia's Conservation of Natural Resources Week, said in part: "Our natural resources are the very foundation of our great industrial and agricultural strength. Productive land on which good crops, pastures, or forests will grow and which will sustain wildlife is the most valuable resource on earth. The misuse and improper treatment of our land through the years has caused accelerated soil erosion, ruinous floods, sedimentation of our reservoirs and harbors, and many other forms of severe damage."

POND CUTS COSTS.—When O. C. Doe and Sons, Harvard, Mass., fruit growers, built a farm pond 100 feet by 120 feet for fire protection and spray water, they cut their annual spraying cost \$600. Previously they had hauled water 40 miles every time they sprayed—15 times a year in 1952. There was a saving of 60 gallons of gas, and the wear and tear on the water truck. They got better results from spraying because the material could be applied promptly at a time that would increase effectiveness in controlling insects and disease—all of which brought more and better fruit. The improved fire protection also resulted in a 25 percent cut in the insurance premium.



In many parts of the country, streambank erosion control has saved vast acreages of farm land from destruction. This excellent photograph by Hermann Postlethwaite shows post-retard jetties which were installed on a section along Magic Creek on the farm of Si Howard, in the Big Sand Soil Conservation District, Miss., in August 1950. Willows and other vegetative plantings are commonly used in connection with such mechanical contrivances, for permanent bank stabilization.

